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WATER TRANSPORTATION IN BOSTON HARBOR

Issues and Opportunities

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WATER TRANSPORTATION IN BOSTON HARBOR:
ISSUES AND OPPORTUNITIES

April, 1989

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TABLE OF CONTENTS

Page

Executive Summary

1. Introduction
2. Summary of Recommendations
3. The Context
4. The Policy Framework: Goals and Objectives
5. Existing and Potential Sites and Services
   - o Site Profiles: Existing and Potential Sites
   - o Existing Services
6. Site and System Criteria
7. Design Guidelines
8. Management Issues
9. Jurisdictional Responsibilities
10. Funding Water Transportation: Cost Effectiveness and Cost Factors
11. Recommended Next Steps

Appendices:

1. Vessel Terminology
2. Vessels in Service in Boston Harbor
3. Technical Report on Physiography
4. Design Guidelines for a Full Access System
5. New York City's Ferry Service Permit Application
6. Resource Directory
7. Bibliography of Water Transportation Studies

LIST OF FIGURES AND TABLES

Page

5.1 Location of Existing and Potential Sites

5.2 Logan Airport

5.3 Clippership Wharf

5.4 Schrafft Center

5.5. Charlestown Navy Yard - Pier 11

5.6 Charlestown Navy Yard - Pier 4

5.7 North Station/Beverly Street

5.8 Burrough's Wharf

5.9 Lewis Wharf

5.10 Long Wharf

5.11 Rowes Wharf

5.12 South Station/Fort Point Channel

5.13 Commonwealth Pier

5.14 Kelly's Landing

5.15 University of Massachusetts/Kennedy Library

5.16 Harbor Islands State Park

5.17 Water Transit Classification: Trip Types and Terminal Functions

6.1 Matrix; Potential for Water Transportation Services

7.1 Covered Waiting Area

7.2 Water Shuttle Facility

7.3 Full Access Floating Ramp

7.4 Full Access Float/Elevator

INTRODUCTION

Water transportation has played a significant role in the rich history of Boston Harbor. As early as the seventeenth century, passenger and freight ferries plied the waters between Charlestown and what is now downtown Boston. At its peak in the 1880s, the ferry system carried as many as 10,000 people a day and met the recreational, commuting, and commercial needs of the area, with routes from downtown Boston to East Boston, Hull, Nantasket, Hingham, North Weymouth, Nahant, Plymouth, Gloucester, Provincetown, and the Harbor Islands. However, as subways, streetcars, and later automobiles rose in popularity, and roads and bridges took over the job of transporting people, demand for water transportation diminished. On January 1, 1953, soon after the completion of the Mystic Tobin Bridge, Mayor John B. Hynes signed legislation legally discontinuing all ferry service in Boston.

Today, as the Harbor is once again becoming the focus for commerce, recreation and housing, water transportation is re-emerging as an integral component of the overall transportation network in Boston. A resurgent economy is producing new jobs and housing in the region, especially in downtown Boston, where over 283,000 people presently work. New employment and housing opportunities are creating significant population increases in the harbor neighborhoods. By 1991, over 5,000 new housing units and 10,000 new residents are expected in the waterfront neighborhoods of East Boston, Charlestown, North End/Downtown, South Boston, and Dorchester. This represents a 19% increase over today's population of 193,370 people living within the Harborpark boundaries.

This population increase is placing tremendous demands on the existing transportation network, including the city's roadways, bridges, tunnels, and

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parking facilities. These factors, combined with the Central Artery North Area Construction project (CANA) at City Square in Charlestown, the Third Harbor Tunnel and Central Artery project, will exacerbate traffic congestion unless the existing transportation network is expanded to include viable alternatives.

Water transportation offers a means of relieving demand on heavily used roads and is a valuable extension to Boston's transportation network. For these reasons, it is important that water transportation be a priority consideration in Boston Harbor's planning and development agenda.

Water Transportation in Boston Harbor: Issues and Opportunities is intended to be an informational planning tool for entities involved in the planning and development of water transportation in Boston Harbor. The policies, recommendations and analyses are intended to provide guidance to developers, public agencies and private boat operators, and to facilitate the establishment of a viable and coordinated water transportation system in the Boston Harbor. Such a system should serve the existing and growing transit needs of Boston's residents and visitors, and should complement Boston's waterfront development goals and objectives. Types of service include:

- o Regional commuter services from suburban areas into downtown Boston
- o Inner Harbor shuttles offering service from one neighborhood to another and to the airport

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* Regional Commuter: Long distance, express services to North and South Shore communities, with frequent service during peak commuter hours (6:00 a.m. to 9:00 a.m. and 4:30 p.m. to 7:30 p.m.).

Inner Harbor Shuttle: Services providing transportation to and from the waterfront neighborhoods of Boston: East Boston, Charlestown, North End/Downtown, South Boston, Dorchester.

- Excursion services offering sightseeing opportunities and easy access to the various cultural and recreational activities located in and around Boston Harbor
- Water taxis for on-demand service to various destinations

Water transport also complements the city's waterfront development by mitigating peak hour traffic; by providing a special transportation service for tourists, shoppers, and visitors; and by providing opportunities to view the city from the waterside.

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* Excursion: Services to the Harbor Islands and recreational/cultural facilities on the waterfront; Inner Harbor cruises and charters; long cruises to Gloucester/Provincetown; and whale watches.

Water Taxi: On-demand service to and from a variety of landing sites in the Inner Harbor at all times of the day.

CHAPTER SUMMARY

This report is intended to address a number of issues related to water transportation in Boston Harbor including: site and system related characteristics and potentials; policies, goals and objectives; design elements; and managerial, financial, and jurisdictional considerations. Recommendations for undertaking the planning and development work needed to implement a water transportation system are also presented.

The report is presented in twelve chapters.

Chapter 1 - Introduction

Chapter 2 - Summary of Recommendations - presents the recommendations made in each chapter of the report.

Chapter 3 - The Context - presents the history of water transportation in Boston Harbor and its recent re-emergence as a viable mode of transportation. An overview of ongoing planning and development activities is provided along with the identification of a series of issues which need to be addressed in a more comprehensive manner. The physical and typographical constraints, which must be considered in planning and developing a water transportation system in Boston Harbor are presented.

Chapter 4 - The Policy Framework: Goals and Objectives - presents an outline of goals and objectives to guide the design of a comprehensive water transportation network. This policy framework would provide a unified approach for all of the entities involved in planning and developing the system.

Chapter 5 - Existing and Potential Sites and Services - This chapter is organized into two sections. The first section provides detailed information on existing and potential sites for operating one or more water transportation

services, i.e., regional commuter boat, inner harbor shuttle, excursion service or on-demand taxi. The second section provides an analysis of existing services.

Chapter 6 - Site and System Criteria - presents both land and waterside criteria for the four types of services proposed: Inner Harbor shuttle, regional commuter, excursion, and water-taxi. Site characteristics for existing and proposed locations for landings and terminal facilities in the Inner Boston Harbor are examined. Each site is identified on a map and evaluated for its recommended type of service. The chapter concludes with a matrix that evaluates and rates the suitability of sites for the four types of services. A summary of the matrix notes the sites most appropriate for each type of service.

Chapter 7 - Design Guidelines - presents specific guidelines with regard to landside facilities and terminals, vessels, and handicapped access.

Chapter 8 - Management Issues - presents management issues related to water transportation in the Inner Harbor including services, pier space management, leasing, licensing and permitting, and harbor traffic safety.

Chapter 9 - Jurisdictional Responsibilities provides an overview of the roles and responsibilities of the various entities within the existing system, and discusses four potential options for governing a water transportation network.

Chapter 10 - Funding Water Transportation: Cost Factors and Effectiveness - discusses funding issues, including current subsidy providers and conditions, landside investment, future policy goals and recommendations for funding water transportation.

Chapter 11 - Recommended Next Steps - outlines recommended actions to be taken in the development of a water transportation system.

Appendices - Seven appendices are provided with the report. They are (1) a Vessel Terminology, (2) Vessels in service in Boston Harbor, (3) Technical Report on Physiography, (4) Design Guidelines for a Full Access System (5) New York City's Ferry Service Permit Application, (6) A Resource Directory.

CHAPTER 2

SUMMARY OF RECOMMENDATIONS

SUMMARY OF RECOMMENDATIONS

Recommendations contained in this document are summarized below in order by applicable Chapter. Background and justification for the recommendations can be found in the respective Chapters.

Chapter 4: The Policy Framework: Goals and Objectives

Formulate inter-agency policies, goals, and objectives to provide guidance to all entities involved with water transportation activities, as well as to promote the development of a comprehensive, coordinated water transportation system in the Boston Harbor.

Chapter 6: Site and System Criteria

1. Priority should be given to finalizing the selection of those sites which appear most suitable for the four water transportation services studied in the report. Fifteen sites are evaluated against a number of criteria, including proximity to public transit; proximity to tourist, cultural and recreation activities; and proximity to residential, commercial, and hotel areas. The results of the evaluation are discussed in Chapter 6.

2. The Inner Harbor shuttle and the regional commuter service should satisfy similar operational criteria, as identified in Chapter 6.

3. The excursion service and the on-demand taxi service should satisfy distinct operational criteria, as identified in Chapter 6.

Chapter 7: Design Guidelines

The design and construction of passenger-handling systems for water shuttle and taxi service should conform to specific standards contained in Chapter 7 and pertaining to the following:

- Ramps
- Loading float/wave breaker
- Small floats
- Piles and supporting structures
- Lighting
- Electrical equipment

- o Signage
- o Handicapped access

Chapter 8: Management Issues

1. Pier Space Management. Space needs to be allocated to accommodate essential functions for the efficient operation of water transportation services, i.e., ticketing and information, queuing of passengers; passenger unloading; supply of food and water; fueling; and vessel service and repair.

2. Organize service activities with respect to the time of day they occur, to avoid space conflicts for activities such as deliveries of fuel, repair work, and loading and unloading of passengers.

3. Leasing. Research is needed in order to formulate consistent guidelines for leasing management.

4. Licensing and Permitting. The following issues should be resolved in order to encourage a safe and well coordinated water transportation system: whether services and routes should be more actively regulated by the licensing or permitting agencies, or whether such considerations should be determined by the market; who should be allowed to operate a water transportation service in the Harbor, for which routes, for how long, and under what conditions?

5. Update and enact Harbor regulations for the City of Boston to address traffic and safety problems related to increased water transportation activities in the Boston Harbor.

6. Develop a Comprehensive Management plan in conjunction with adjacent cities and towns which identifies potential sites, services, routes, intermodal links and an implementation schedule for developing water transportation in the Boston Harbor.

7. Develop inter-agency policies for managing water transportation activities in the Boston Harbor.

Chapter 9: Jurisdictional Responsibilities

1. Establish a governing body for water transportation in Boston Harbor which would assume the central coordinating, funding, planning and governing roles for water transportation. This would leave the actual operations to the private sector, which would bid for routes and services.

2. Finalize the technical aspects of the system, such as design of vessels, facilities, routes and scheduling.

3. Provide for licensing of boat operators under the safety regulations promulgated by the U.S. Coast Guard and others.

4. Establish policies and programs for the allocation of funds, subsidy of operators, and investment in facilities and equipment.

5. Provide multiple water transit routes to ensure an efficient, comprehensive service.

Chapter 10: Funding Water Transportation: Cost Factors and Cost Effectiveness

The various public agencies who oversee water transportation services should provide subsidies for water transportation services and seek to obtain waterfront improvements from private developers such as, landings, waiting areas, lighting, landscaping, and support facilities.

Chapter 11: Recommended Next Steps

1. Develop a comprehensive water transportation management plan for Boston Inner Harbor that includes potential sites, routes, intermodal links, and implementation schedules for developing a water transportation system.

2. Update and enact Harbor regulations for the City of Boston to address potential safety problems in the Inner Harbor.

3. Develop and implement design standards and specifications for docking systems and landside facilities servicing water transportation, that are handicapped accessible.

4. Establish a licensing permitting system for water transportation services that incorporates standards for landside and docking facility construction, operations and boating safety.

5. Undertake the following studies:

    - A study to determine the appropriate vessels for the Inner Harbor water transportation system

    - Analysis of ridership to identify service demand and routes for the Inner Harbor water shuttle system

    - A study to develop design standards for docking systems that are handicapped accessible and economically and functionally feasible

    - A cost feasibility study for evaluating various types of water transportation services in the Inner Harbor

6. Coordinate efforts with appropriate state agencies to develop new sites for water transportation terminals.

7. Identify sites that may serve as water transportation terminals to mitigate the adverse effects of Central Artery construction.

8. Develop inter-agency policies for managing water transportation activities in Boston Harbor.

CHAPTER 3

THE CONTEXT

THE CONTEXT

History

Water transportation in Boston Harbor has been important since the Colonial era. Colonial settlers in Boston realized that the peninsula geography of the City was well-suited to a system of water transit. Settlements such as Charlestown, Cambridge, Noodle's Island (East Boston), and Winnissimet (Chelsea), could be quickly and easily connected to mainland Boston and to each other by water. Boston entrepreneurs capitalized on this opportunity and, by 1631, the "Great Ferry" was in operation between Boston and Charlestown. In 1638, the General Court of Massachusetts established a ferry connecting Boston with Chelsea, East Boston, and large ships docked in the Harbor. In 1640, the famous "Penny Ferry" began carrying passengers across the Mystic River to a location near the present Malden Bridge.

Despite the advent of the steam engine and later the electric trolley, the network of water transportation continued to expand into the 1800s Ferry service in Boston Harbor flourished and peaked in the 1880s, when ferries met the recreational, commuting, and commercial needs of the area, with routes from downtown Boston to East Boston, Hull, Nantasket, Hingham, North Weymouth, Nahant, Plymouth, Gloucester, Provincetown, and the Harbor Islands.

As Boston entered the twentieth century, the network of the old steam passenger ferries began to decline. As the automobile rose in popularity and affordability, demand for water transportation fell. Finally, on January 1, 1953, soon after the completion of the Mystic River Bridge, Mayor John B. Hynes signed legislation legally discontinuing all ferry service in Boston. The construction of the Sumner and the Callahan Tunnels further reduced the need for a cross-harbor water transportation ferry service

Re-Emergence of Water Transportation in Boston Harbor

Water transportation in Boston Harbor remained dormant for almost two decades until 1973. Faced with a need to find alternative transportation to Boston during the construction of Route 228, South Shore residents commissioned a water transportation feasibility study of Hingham to Boston service. Based on this initiative, route tests and cost/benefit studies were conducted using high-speed hover-marine craft. Private boat operators provided commuter service between Hingham and Boston with one round-trip journey per day; however, the 15-knot speed limit was too much of a constraint for operators to overcome. Service was curtailed because of insufficient rider-ship, lack of support services, and slow average trip speed.

In 1977, service began again with the assistance of Massport, the Department of Public Works (DPW), and the State Legislature. Massport rented dock space in Hingham, and the DPW provided parking space on the dock. The Legislature passed a $50,000 subsidy in a $1 million bond issue in the FY78 budget.

With this money, the Executive Office of Transportation and Construction (EOTC) purchased a high-speed hovermarine craft and re-initiated the Hingham-Boston route. This service operated inconsistently for three years, with slow and unreliable service due to winter/inclement weather and mechanical problems.

Despite these setbacks, service continued into the 1980s. Mass Bay Lines ran one round-trip daily, with a standard single hull boat which averaged 15 knots. It drew a moderate, but dedicated ridership of approximately 75 people per day. Mass Bay Lines continued to provide this single round trip water shuttle service to Hingham, until April of 1983. Ridership increased during this period to

an average of 90 passengers per day. In April, 1983, Mass Bay lines began running several round trips on high speed boats, reducing the trip time by a half hour. The demand for this type of service led to an increase in ridership to over 475 passengers per day through early 1984.

In an effort to mitigate the adverse impact of the 1984 reconstruction of the Southeast Expressway, the Executive Office of Transportation and Construction (EOTC) provided a subsidy for the Boston-Hingham ferry service. The EOTC's capital improvements, including new parking and dock facilities at Hingham, contributed to an increase in ridership on the Hingham-Boston run to 1,300 passengers per day in the summer of 1984.

From the end of 1984 to the present, both ridership and quality of service have steadily improved on the Hingham to Boston shuttle. Capital improvements and annual operating subsidies by the EOTC and Massachusetts Bay Transit Authority (MBTA) for docking, parking, lighting, waiting areas and other improvements at Hingham have contributed to steady growth in ridership, which now averages over 1,900 passengers per day in a total of 15 round trips.

In July of 1985, Massport began the Airport Water Shuttle between Logan Airport, Rowes Wharf and Commonwealth Pier. The service, subsidized by Massport, was operated by two private firms. The service was limited, operating seasonally (May-December). However, improvements to the Logan Airport dock, the provision of bus transportation linking the water shuttle to airline terminals, and increased publicity generated a 135% increase in rider-ship between 1985 and 1987. In the spring of 1987, management of the service was under-taken by the Beacon Company, with two 24-passenger boats operating at 15-minute headways between departures from Rowes Wharf.

Major efforts in support of water transportation have also been under-taken by private waterfront developers, private boat operators, and by City and State agencies. Presently $100 million is being invested by private developers in water transportation facilities harbor-wide: Rowes Wharf, Long Wharf, Logan Airport, Charlestown Navy Yard, Lincoln Wharf, and other waterfront sites, as presented in more detail in Chapter 5. These projects are in deliberate compliance with both the Chapter 91 Waterways License requirements and the Harborpark guidelines.

Water transportation operators are investing in new boats and expanded staffs. To coordinate their activities and plans for future needs, they have formed an organization - The Massachusetts Association of Passenger Vessel operators (MAPVO).

Water transportation also has been a major component of the city's Harborpark planning program since its inception in January 1984. As the result of a combined effort of DEQE's Division of Wetlands and Waterways and BRA, waterfront developers are now required to include water transportation docks and facilities within their projects. Such requirements are helping to provide infrastructure for the emerging water transportation system.

The Harborpark Advisory committee, a 15-member advisory board, has played an important role in reviewing proposed projects and providing specific recommendations on water transportation.

The City of Boston's Transportation Department has formulated a policy framework which supports the establishment of a Boston Harbor water transportation system.

At the State level, the Executive Office of Transportation and Construction (EOTC) has formulated policies and recommendations which

reinforce the need to establish a comprehensive system. The Department of Environment Quality Engineering (DEQE) has recently promulgated Revised Chapter 91 regulations which promote water transportation as a water-dependent use in the licensing of new projects located on Commonwealth tidelands. The proposed Chapter 91 MGL 310 CMR 9.00 Waterway Regulations support the development of landside facilities and terminals, and encourage developers to incorporate these elements into their plans.

The State's Water Transportation Task Force, consisting of representatives from various City and State agencies as well as private boat operators, continues to provide a useful forum in which to pursue discussions and share information.

Problems To Be Addressed

Although the last few years have witnessed a substantial increase in private and public interest in water transportation, the focus has been narrow: responding to crisis situations, solving individual transportation needs and conducting studies. As a result, activities and discussions have been carried out in the absence of either a comprehensive framework or identifiable leadership.

Water transportation in Boston Harbor has now reached a threshold, and requires a comprehensive and coordinated effort to realize its potential benefits. The comprehensive approach recommended by this report requires that several problem areas be addressed, including the following:

- Lack of an overall plan for the development of a system: There is a need to formulate a "Master Plan" which identifies the appropriate sites and routes for services and docking facilities, provides for intermodal links and presents a regulatory framework for planning and development.
- Lack of a policy framework: There is a need to formulate a policy framework which consolidates the goals and objectives of entities involved in the planning and development of water transportation.

- Lack of financial planning: There is a need to identify funding and leasing arrangements that best promote development and management of water transportation, and to determine what type of private/public partnership best promotes and sustains water transportation.

- Lack of guidance to developers: Since there is no single identifiable agency with the mandate of coordinating water transportation activities, developers lack clear direction concerning the inclusion of water transportation components in their projects.

- Conflicting jurisdictions: There is currently no agency with primary jurisdiction or authority to regulate water transportation services in Boston Harbor. Consequently, licensing activities are duplicative and lack coordination.

- Lack of accountability of boat operators: There is a need for improvement in the enforcement of safety regulations and management of boat traffic in the Harbor.

- Lack of sufficient facilities: There is a need to construct and improve landside facilities for year-round use.

- Lack of linkage to landside transportation: Some existing sites are remote and inaccessible by public transportation and vehicular access There is a need for better planning to provide for the land and waterside transportation links.

- Lack of public orientation: There is a need for simple, uniform signage in the vicinity of water transportation facilities.

- Lack of centralized and complete information: There is a need for improved distribution and visibility of boat information and schedules.

Physiography of Boston Harbor

The Harborpark program aims to create a balanced waterfront, to preserve the unique harbor resource for future generations. Water transportation planning must take into account new types of activities which affect this valuable resource.

Planning for water transportation must include analysis of harbor resources with regard to its physiographic factors. Exposure to wind and wave; surge from passing vessels; navigable depth; requirements for access channels; natural protection; zones of accretion and erosion; ice movement; and availability of docks

and bulkheads are all factors that will affect the appropriateness of transportation services to individual sites. The following examples illustrate the relative importance of these considerations:

- Safety Factors: Harborcraft have differing capabilities of handling wave exposures. A safety hazard is frequently created when large tankers and small vessels are mixed in the same travel lane, because of their very different ability to maneuver. Approach zones for small craft marinas and shipping and commercial piers and docks should be established as far apart as possible.

- Tides: Normal tidal ranges in the Harbor are from 8 to 14 feet. Storm tides are up to 5 feet greater Mean sea level is rising. While siltation problems have been reduced by the new Charles and Mystic River dams, main channel dredging is still required every 5 to 10 years.

- Waves: Harbor wave action is a function of depth and fetch. Using available data, the design wave is used to establish loads on vessels and structures. The overturning force of waves is roughly equivalent to the cube of the height; e.g., a three-foot wave has 3 times the overturning force of a one foot wave. Hard vertical surfaces reflect waves, while rough, sloping surfaces absorb wave energy.

- Vessel Size: Best, worst and marginal conditions for berthing various vessels can be determined using data on waves and depths. Low wave energy areas with adequate water depth should be reserved for smaller to medium vessels, while deep water locations in South Boston, East Boston and Charlestown should be reserved for larger commercial and military craft.

When these factors are carefully related to the new and growing forms of maritime commerce and private recreational boating needs, the value of--and limitations to--available navigable water areas will be readily apparent. It will also become clear that only certain limited locations in the harbor are appropriate for particular navigable functions, and that these zones must be preserved for the appropriate marine use.

CHAPTER 4

THE POLICY FRAMEWORK: GOALS AND OBJECTIVES

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GOAL #1: To facilitate the development of a viable, well managed, coordinated water transportation system in the Boston Harbor.

Objectives:

- To provide year-round commuter, Inner Harbor water shuttle, water taxi and excursion services to serve the general public.
- To ensure that the State, through its Chapter 91 licensing process, the City, and the Boston Redevelopment Authority require water transportation facilities in newly proposed projects.
- To identify sites for waterborne transit services that are consistent with the physical constraints of the harbor with and the land-use characteristics of the waterfront.
- To develop a coordinated licensing and permitting procedure that incorporates routes, time schedules, docking facilities, insurance, and marketing.
- To develop a comprehensive Water Transportation Management plan for the Boston Inner Harbor.
- To develop inter-agency policies for managing water transportation activities in Boston Harbor.

GOAL #2: To improve Intra-Harbor movement and reduce Downtown congestion, particularly in areas adversely affected by the Central Artery and Third Harbor tunnel construction projects.

Objectives:

- To develop intermodal links between water and landside transportation systems.
- To provide connections between water transportation sites and public access, i.e., Harborwalk and Harbor parks, wherever possible.
- To provide for the transport of bicycles on vessels to complement landside biking activities.

GOAL #3: To ensure a consistent quality of safety, convenience and accessibility on the Boston waterfront.

Objectives:

- To establish uniform design guidelines that will set building and performance standards for docks, ramps, gangways and landside facilities.

- To assure that terminal facilities and vessels are accessible to elderly and handicapped persons. This includes boarding ramps, seating areas, ticketing/waiting areas, and pedestrian pathways.

- To ensure that landside facilities are suitable for year-round use.

- To enact revised mooring and Harbor regulations for the City of Boston to address increased traffic and safety problems related to expanded water transportation activities in the Boston Harbor.

GOAL #4: To provide a cost-effective water transportation system which offers fares comparable to land public transportation.

Objectives:

- To support an expanded private sector role in the provision of water transportation service and facilities.

- To provide a mechanism for fiscal stability for the development and maintenance of water transportation.

- To provide a fee structure that will enable operators to provide service at affordable costs.

CHAPTER 5

EXISTING AND POTENTIAL SITES AND SERVICES

INTRODUCTION

This chapter is organized into two sections. The first section provides detailed information on existing and potential sites for operating one or more water transportation services, i.e., regional commuter boat, inner harbor shuttle, excursion service or on-demand taxi. The second section provides an analysis of existing services.

SITE PROFILES:

EXISTING AND POTENTIAL SITES

EXISTING AND POTENTIAL WATER TRANSPORTATION SITES

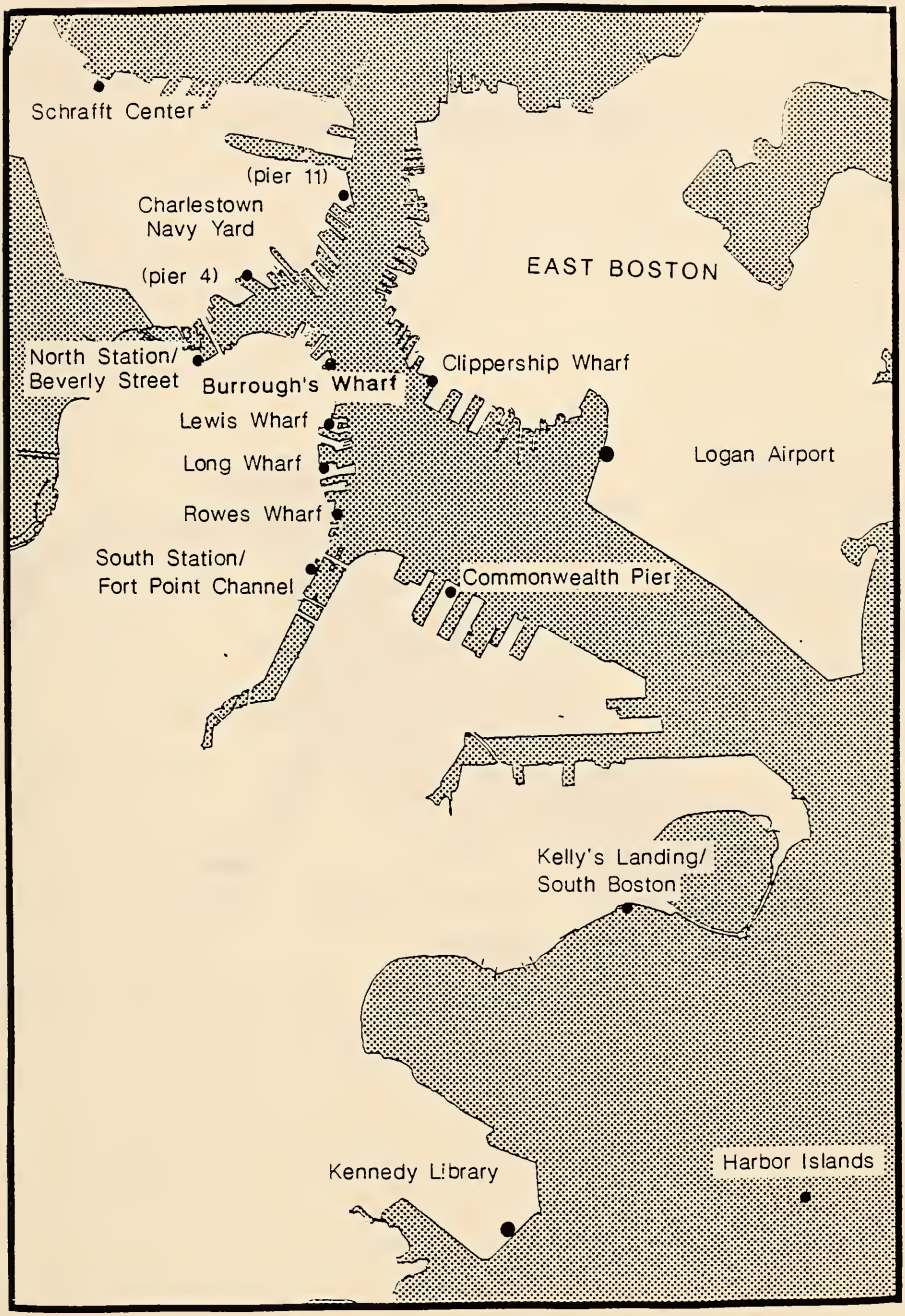
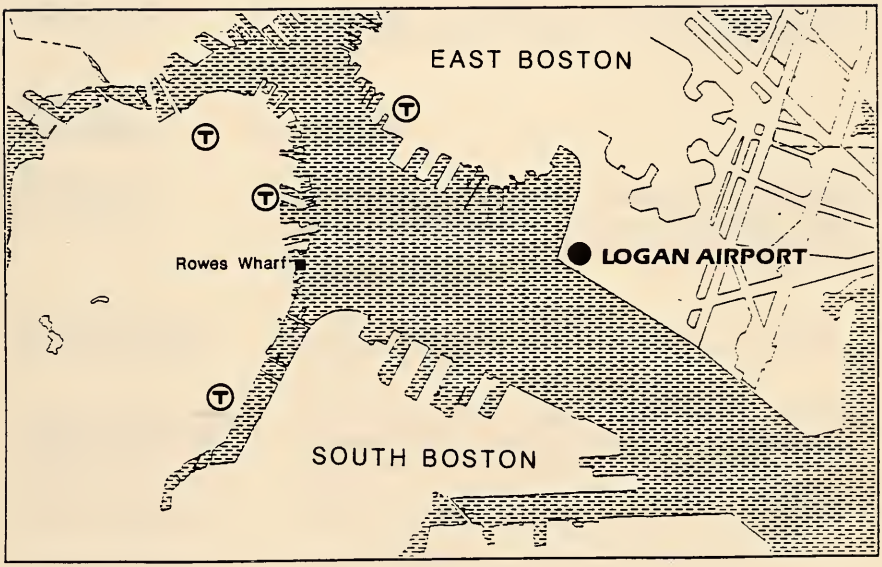


FIGURE (5.1)

LOGAN AIRPORT

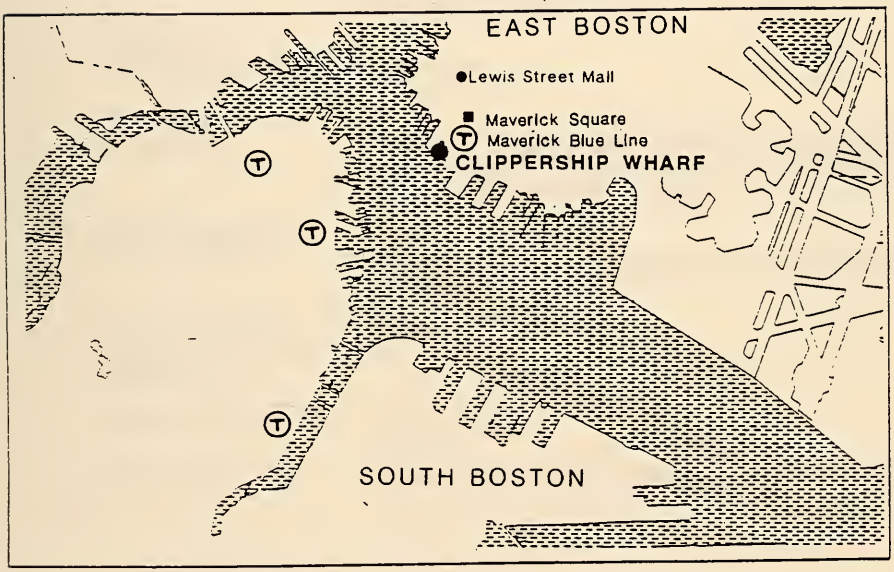


(Figure 5.2)

LOGAN AIRPORT

SITE:	The Airport water shuttle facility is located at the northwest corner of East Boston's Logan Airport,known as "Bird Island Flats".
OWNER:	Massachusetts Port Authority (MASSPORT)
DEVELOPER:	Massachusetts Port Authority
OPERATOR:	Beacon Companies and Harobr Connection, Inc
CURRENT RESTRICTIONS:	1 boat operator
STATUS:	Completed in June, 1985
DESCRIPTION:	The waterfront of Logan Airport includes the Massport Airport Water Shuttle facility. In operation since June of 1985.
PROJECT INVESTMENT:	$2.5 million
LANDSIDE FACILITIES:	Includes a 2,000 s.f. covered walkway and enclosed shelter. Three shuttle vans transport boat riders to their airline terminals. Also, berthing space for Massport Fire Boat is provided at the dock.
PUBLIC TRANSIT CONNECTIONS:	The three shuttle vans link the service to the Airport terminals.
EXISTING WATER TRANSPORTATION SERVICES:	The existing service operates to and from Rowes Wharf. Operates every 15 minutes weekdays, half hours on weekends. Two 28-passenger vessels are used.
DOCK CAPACITY:	120 linear feet of dock space
SITE SUITABILITY:	Site suitable for Inner Harbor shuttle service.

CLIPPERSHIP WHARF

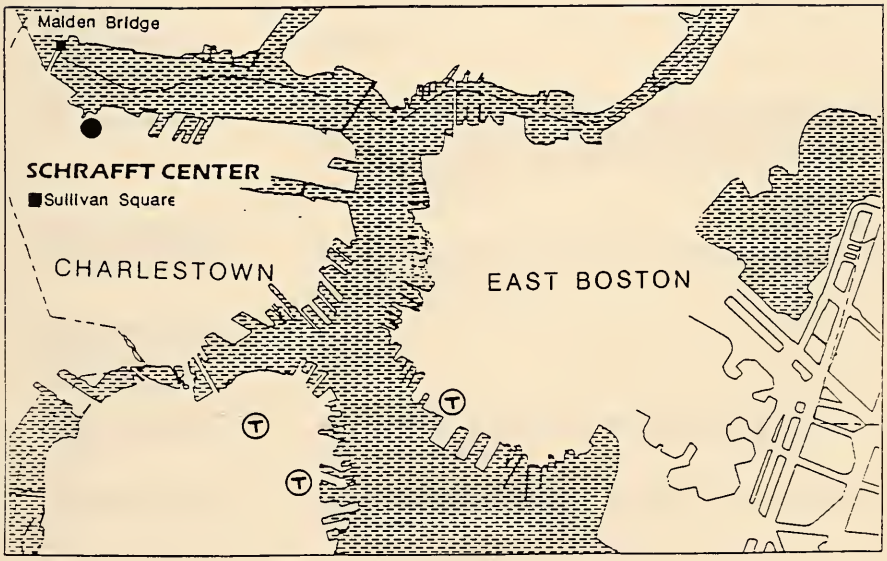


(Figure 5.3)

CLIPPERSHIP WHARF

SITE:	The Clippership Wharf site is centrally located on the East Boston waterfront, near Maverick Square. The site is bounded to the south by Lewis Street Mall and to the west by Clippership Lane.
OWNER:	Related Companies Northeast, Inc.
DEVELOPER:	Clippership Wharf Limited Partnership
STATUS:	Currently in design review, with completion scheduled for 1992.
DESCRIPTION:	The 370 unit Clippership Wharf residential development in East Boston will include 55 affordable housing units, a 380 car underground garage, a myriad of community facilities, and water shuttle facilities.
PROJECT INVESTMENT:	$8.5 million
LANDSIDE FACILITIES:	A 1,200 s.f. covered and heated ticketing/waiting area is planned. Short term parking and a drop off/turnaround area will be located close to the facility.
PUBLIC TRANSIT CONNECTIONS:	The site is a two-block (five-minute) walk to the Maverick Blue Line subway station.
EXISTING WATER TRANSPORTATION SERVICES:	None
DOCK CAPACITY:	130 linear feet
SITE SUITABILITY:	Suitable for Inner Harbor shuttle and water taxi service.

SCHRAFFT CENTER

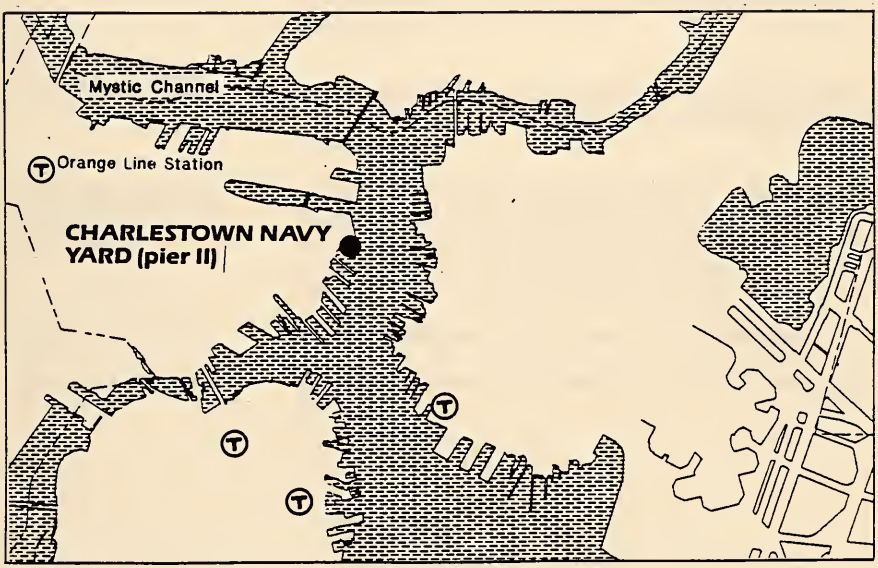


(Figure 5.4)

THE SCHRAFFT CENTER

SITE:	The Schrafft Center is located in the northwest corner of Charlestown, on the Mystic River. It is one-quarter mile south of the Malden bridge crossing into Everett.
OWNER:	The Flatley Company
DEVELOPER:	The Flatley Company
STATUS:	A water transportation terminal to provide shuttle service for center users, will be completed in the summer of 1989.
DESCRIPTION:	As part of the rehabilitation of the former Schrafft Candy Factory, to 588,000 sq.ft. office complex, the Flatley Company is constructing a water shuttle facility on site.
PROJECT INVESTMENT:	$3 million
LANDSIDE FACILITIES:	The site contains a 2-acre landscaped and shaded park with seating; a 500 sq.ft. gazebo waiting area, a public boat launch and landing, and facilities to house the Charlestown Youth Sailing Club.
PUBLIC TRANSIT CONNECTIONS:	The site is a 300 yard walk to the Sullivan Square Orange Line subway station.
EXISTING WATER TRANSPORTATION SERVICES:	None
DOCK CAPACITY:	520 linear feet of dock space, including the boat launch/landing area.
SITE SUITABILITY:	Site well-suited for both Inner Harbor shuttle and water taxi service.

CHARLESTOWN NAVY YARD (PIER 11)

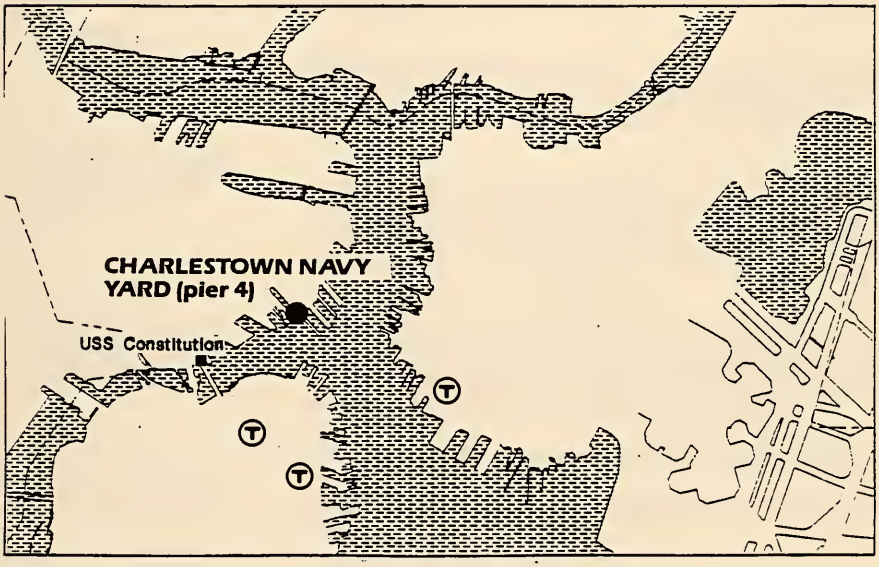


(Figure 5.5)

CHARLESTOWN NAVY YARD (PIER 11)

SITE:	Charlestown Navy Yard, Pier 11 is located at the north-east tip of the Navy Yard, bordering on the Mystic Channel.
OWNER:	Boston Redevelopment Authority
DEVELOPER:	The Raymond Group
STATUS:	The facility is in the preliminary design stage.
DESCRIPTION:	The facility would serve the eastern half of the Navy Yard.
LANDSIDE FACILITIES:	The facility will include a 2,000 s.f., covered, heated waiting area/ticket facility to serve shuttle passengers. The facility is 400 ft. walking distance from the 1,400 car parking garage.
PUBLIC TRANSIT CONNECTIONS:	Nearby (ten-minute walk) MBTA bus service provides connections to the Haymarket Green/Orange line subway station.
EXISTING WATER TRANSPORTATION SERVICES:	The area is currently used for temporary boat storage for Mass Bay Lines, a boat operator relocated during the construction of Rowes Wharf. The site has also been proposed for berthing of existing naval vessels, which could coexist with ferry berths as an intermittent use.
DOCK CAPACITY:	The dock will contain 500 linear feet of dock space.
SITE SUITABILITY:	Suitable for Inner Harbor shuttle service and water taxi service.

CHARLESTOWN NAVY YARD (PIER 4)

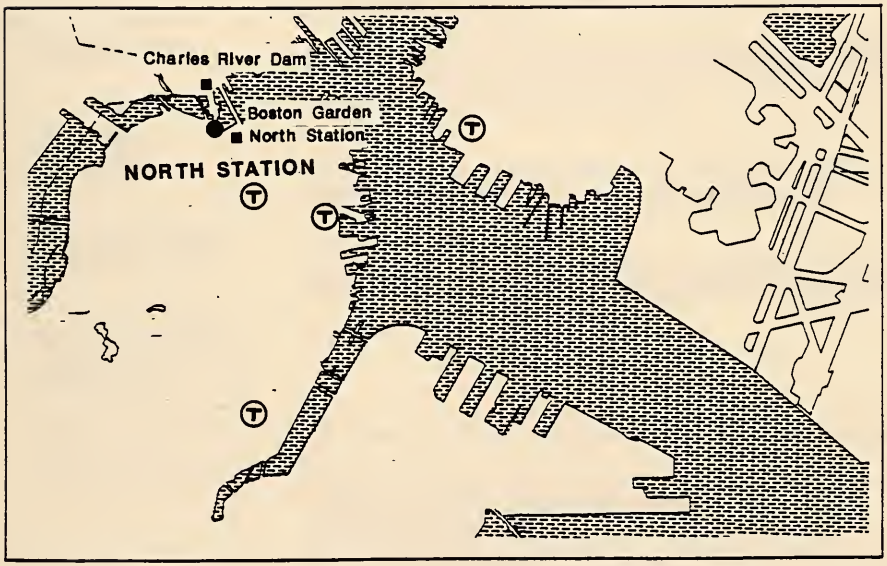


(Figure 5.6)

CHARLESTOWN NAVY YARD (PIER 4)

SITE:	The Charlestown Navy Yard Pier 4 site is located at the southwest corner of the Navy Yard, just north of the berthing area for the USS Constitution.
OWNER:	Boston Redevelopment Authority
DEVELOPER:	Boston Redevelopment Authority
STATUS:	The new water shuttle facility is scheduled for completion in May, 1989.
DESCRIPTION:	The water shuttle facility will be adjacent to historic Dry Dock #2 at Pier 4.
PROJECT INVESTMENT:	$2 million
LANDSIDE FACILITIES:	The shuttle facility borders the 16-acre Shipyard Park and is connected to the 1,400 car parking garage by a free shuttle van. A sheltered waiting area is available.
PUBLIC TRANSIT CONNECTIONS:	Nearby (five-minute walk) MBTA bus service provides connections to the Haymarket Green/Orange Line subway station. Navy Yard shuttle meets every water shuttle and operates within the confines of the Charlestown Navy Yard.
EXISTING WATER TRANSPORTATION SERVICES:	Boston Harbor Cruises (BHC) has begun a 12 hour per day shuttle service between Pier 4 and Long Wharf in downtown Boston. The service currently makes 25 round trips during the day. Trip time: approximately 5 minutes.
DOCK CAPACITY:	The dock facility will be approximately 120 linear feet.
SITE SUITABILITY:	Appropriate for Inner Harbor shuttle service and water taxi service.

NORTH STATION/BEVERLY STREET

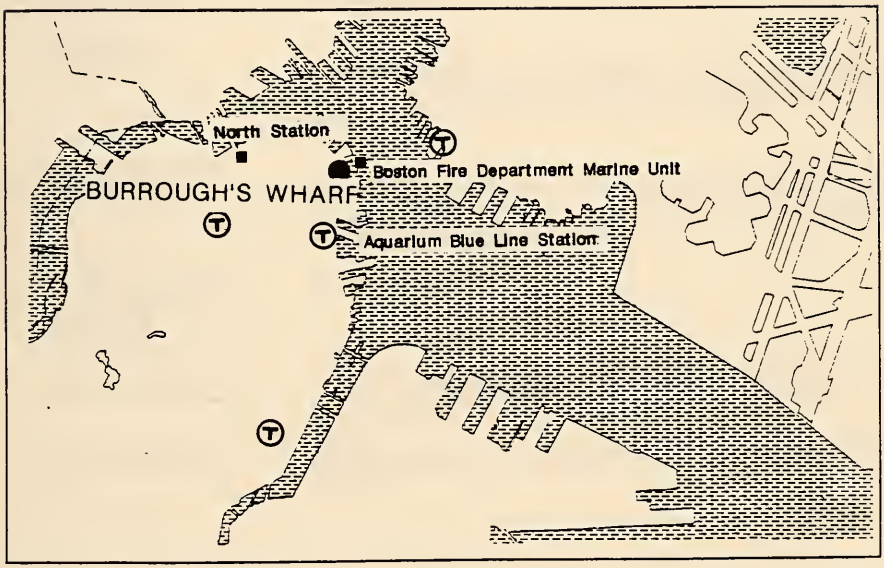


(Figure 5.7)

NORTH STATION/BEVERLY STREET

SITE:	The North Station/Beverly Street site is located at the northern tip of Beverly Street, abutting the Boston Garden, just east of the Charles River Dam.
OWNER:	Privately Owned
DEVELOPER:	To be determined, possibly Massachusetts Water Resources Authority (MWRA)
STATUS:	The concept for a facility at this location is in the preliminary planning stage. It is being considered as a water transportation site for transporting workers to the MWRA treatment sites. Were the site to be acquired and developed by MWRA, it could serve the needs for Harbor Shuttle service during the hours when the facility was not being used to transport MWRA workers.
DESCRIPTION:	The site is an open, water-edge area in the basin between the Charlestown Bridge and the Charles River Dam, capable of supporting a water shuttle dock.
LANDSIDE FACILITIES:	The site neighbors several public parking lots, and is bounded by a small public park with seating areas.
PUBLIC TRANSIT CONNECTIONS:	The site is adjacent to the North Station Green and Orange Line subway station, and the North Station Commuter Rail.
EXISTING WATER TRANSPORTATION SERVICES:	None
DOCK CAPACITY:	The area should be able to support a 120 linear feet dock.
SITE SUITABILITY:	Close proximity to commuter rail and rapid transit could make this an appropriate site for inner harbor shuttle service when developed. Initial site development investment made by MWRA could make the site attractive for future water transportation service.

BURROUGH'S WHARF

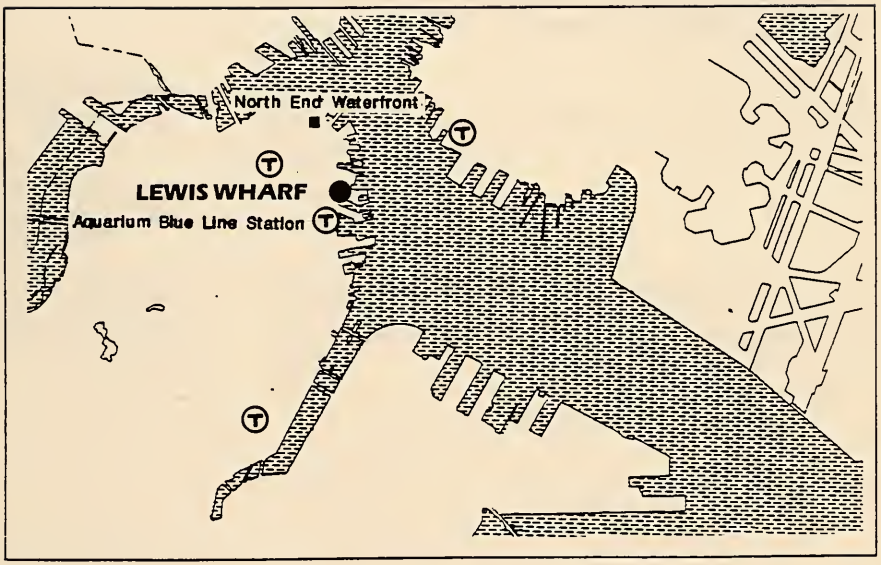


(Figure 5.8)

BURROUGH'S WHARF

SITE:	Burrough's Wharf (Lincoln Wharf)
OWNER:	Burrough's Wharf
DEVELOPER:	Kenney Development Co.
STATUS:	The project is under construction, with completion scheduled for June 1, 1990.
DESCRIPTION:	Part of the Burrough's Wharf condominium development includes water shuttle facilities. The improved headquarters for the Boston Fire Department Marine Unit will also be located at this wharf.
PROJECT INVESTMENT:	$6.5 million
LANDSIDE FACILITIES:	The site will include a landscaped park area with seating, and 103-space underground parking garage with an enclosed waiting area.
PUBLIC TRANSIT CONNECTIONS:	The site is approximately a five-minute walk to both the Aquarium Blue Line station and the North Station Orange and Green Line stations.
EXISTING WATER TRANSPORTATION SERVICES:	None
DOCK CAPACITY:	The facility will have 550 linear feet of dock space,including the fire department facilities.
SITE SUITABILITY:	Appropriate for Inner Harbor shuttle service and water taxi service.

LEWIS WHARF

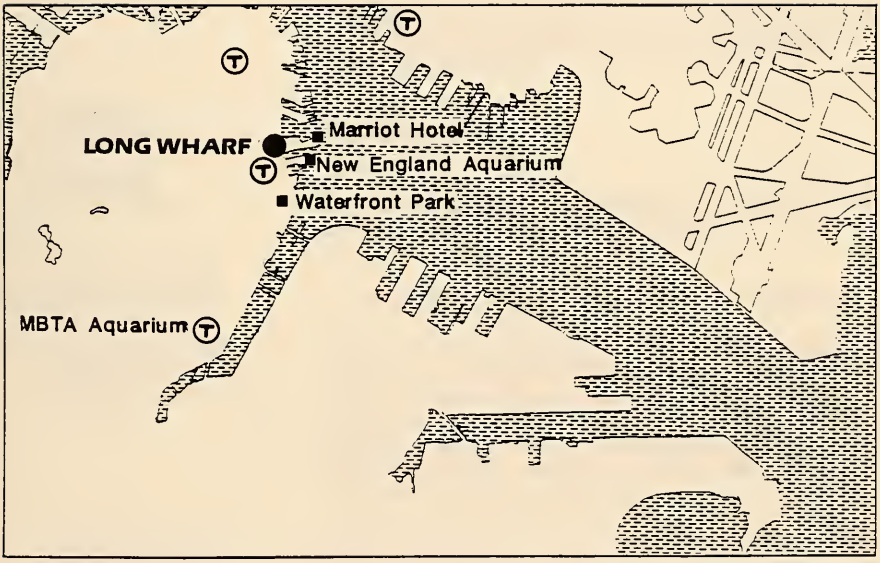


(Figure 5.9)

LEWIS WHARF

SITE:	The Lewis Wharf site is located in the center of the North End waterfront, at the eastern tip of Fleet Street.
OWNER:	Gunwyn Development Company
DEVELOPER:	Gunwyn Development Company
STATUS:	The project is in the design development stage.
DESCRIPTION:	The proposed project includes a 240-280 room hotel with an 800 car underground parking facility.
LANDSIDE FACILITIES:	The project, if approved, would add 2,200 linear feet to Harborwalk, directly linking Atlantic Avenue, Eastern Avenue and Sargent's Wharf. It would also add usable open space where surface parking now exists on Lewis Wharf.
PUBLIC TRANSIT CONNECTIONS:	The facility is a five-minute walk from the Aquarium Blue Line subway station.
EXISTING WATER TRANSPORTATION SERVICES:	None
DOCK CAPACITY:	The site will include 150 linear feet of dock space.
SITE SUITABILITY:	Potential for Inner Harbor shuttle service and/or water taxi service.

LONG WHARF

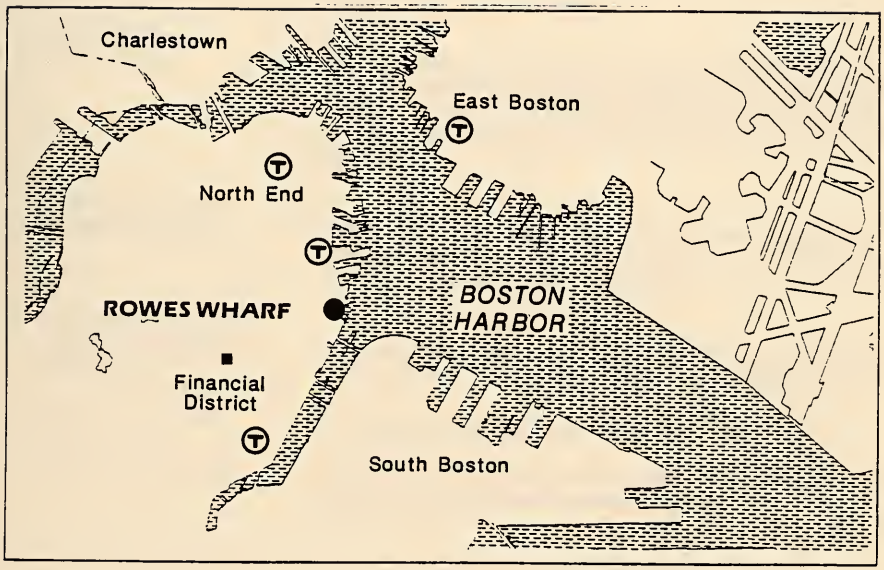


(Figure 5.10)

LONG WHARF

SITE:	The Long Wharf site is centrally located on the Boston waterfront, bounded by the New England Aquarium to the south, and Waterfront Park to the north.
OWNER:	Boston Redevelopment Authority
DEVELOPER:	Boston Redevelopment Authority and the Department of Environmental Management.
STATUS:	Phase I is under construction. Phases 2 and 3 are in planning. Project is scheduled for completion in 1991.
DESCRIPTION:	The reconstruction of Long Wharf will both expand and improve existing water transit facilities so that the Pier can serve as a major shuttle and excursion terminal. A Visitors Service Center providing a heated and enclosed waiting area with centralized ticketing and public information is planned.
PROJECT INVESTMENT:	$20 million
LANDSIDE FACILITIES:	The site is bounded by the Marriot hotel, Waterfront Park, and has available public parking nearby.
PUBLIC TRANSIT CONNECTIONS:	The site is at the Aquarium Blue Line subway station.
EXISTING WATER TRANSPORTATION SERVICES:	The site currently serves as the major excursion/shuttle terminal in the harbor, with the headquarters of Boston of Boston Harbor Cruises (BHC) and Bay State Provincetown Cruise Lines (BSPAC). The site serves as the origin/ destination site for the Harbor Islands service and Charlestown Navy Yard Pier 4 service, as well as other excursion and charter services.
DOCK CAPACITY:	The facility will include 3,240 linear feet of dock space.
SITE SUITABILITY:	The site is suitable for all types of service including: commuter, inner harbor shuttle service, water taxi service, and excursion.

ROWES WHARF

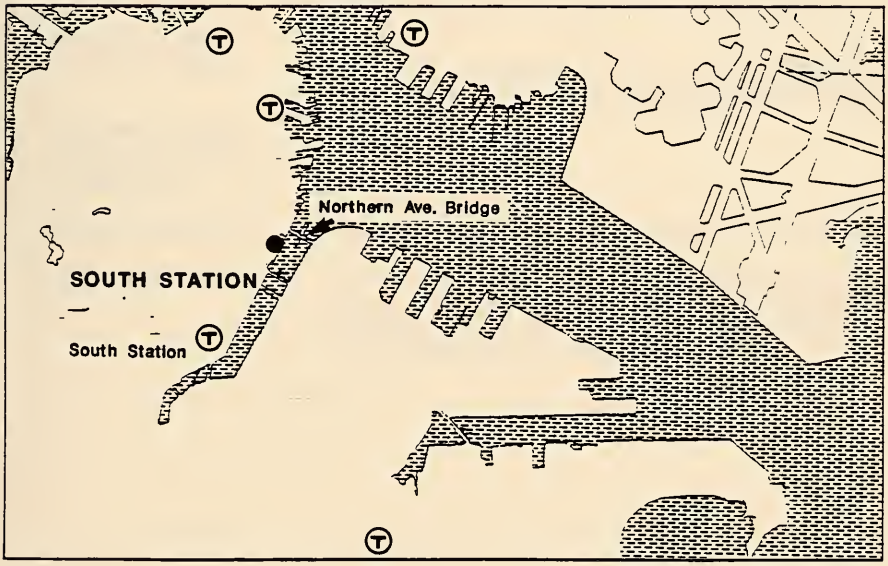


(Figure 5.11)

ROWES WHARF

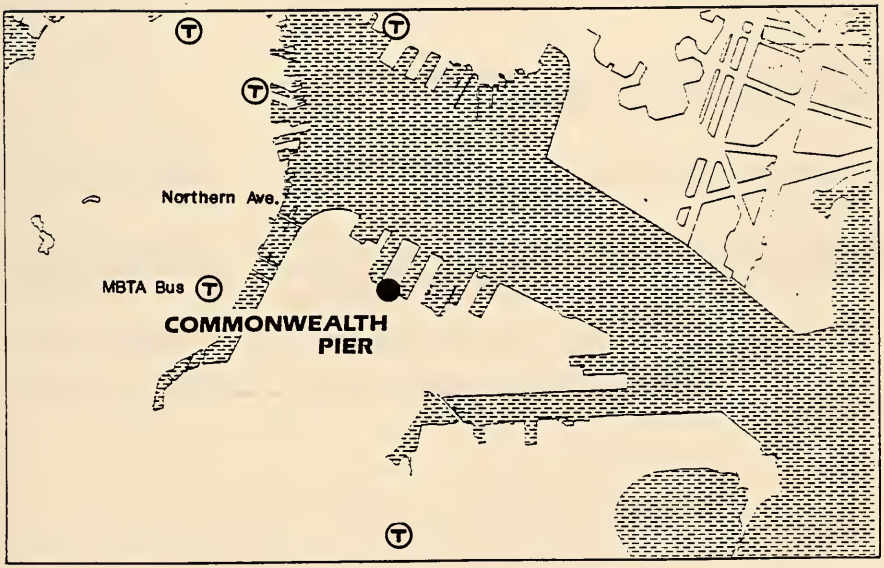
SITE:	The Rowes Wharf site is located on Atlantic Avenue, at the southeast edge of the Inner Harbor, 100 yards north of the Northern Avenue Bridge and the Fort Point Channel.
OWNER:	The Beacon Companies
DEVELOPER:	The Beacon Companies and The Equitable
STATUS:	Completed.
DESCRIPTION:	Extensive portions of the Rowes Wharf project are water transportation facilities, serving as the focal commuter boat terminal in Boston Harbor.
PROJECT INVESTMENT:	$18 million
LANDSIDE FACILITIES:	A hotel, underground parking garage, a large marina,and an elevated, two-story domed waiting area and observation deck are included in this mixed-use project. A ferry terminal at dockside consisting of a ticketing and waiting area are located here.
PUBLIC TRANSIT CONNECTIONS:	The site is a three-block walk to both the Aquarium Blue Line subway station and the South Station Red Line subway, commuter rail, and AMTRAK station.
EXISTING WATER TRANSPORTATION SERVICES:	The Hingham-Boston commuter service and Logan Airport shuttle service are currently operating from the site.
DOCK CAPACITY:	The facility has 650 linear feet of dock space.
SITE SUITABILITY:	Suitable for commuter service, inner harbor shuttle service, water taxi service and excursion boats.

SOUTH STATION/FORT POINT CHANNEL



(Figure 5.12)

COMMONWEALTH PIER

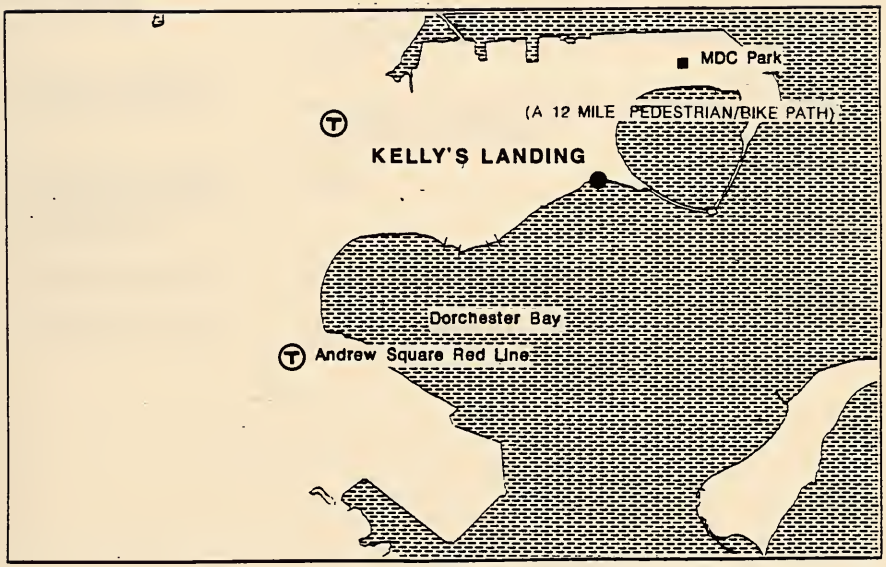


(Figure 5.13)

COMMONWEALTH PIER

SITE:	The Commonwealth Pier site is centrally located on the South Boston waterfront, bounded to the north by Fan Pier, to the south by the Fish Pier, and to the west by Northern Avenue.
OWNER:	Massachusetts Port Authority (MASSPORT)
DEVELOPER:	Fidelity, Monarch and Pier 5 Associates
STATUS:	Completed
DESCRIPTION:	An integral part of the Commonwealth Pier/World Trade Center is its water transportation facility.
PROJECT INVESTMENT:	$2.2 million
LANDSIDE FACILITIES:	The World Trade center includes restaurant and conference facilities, and an indoor waiting area adjacent to the dock.
PUBLIC TRANSIT CONNECTIONS:	An MBTA bus serves the Northern Avenue entrance to the site.
EXISTING WATER TRANSPORTATION SERVICES:	The facility is currently used as an excursion boat terminal. Airport Water Shuttle and shuttle service to Long Wharf is provided by Bay State Cruises.
DOCK CAPACITY:	The facility has 450 linear feet of dock space.
SITE SUITABILITY:	The site is suitable for all types of service.

KELLY'S LANDING

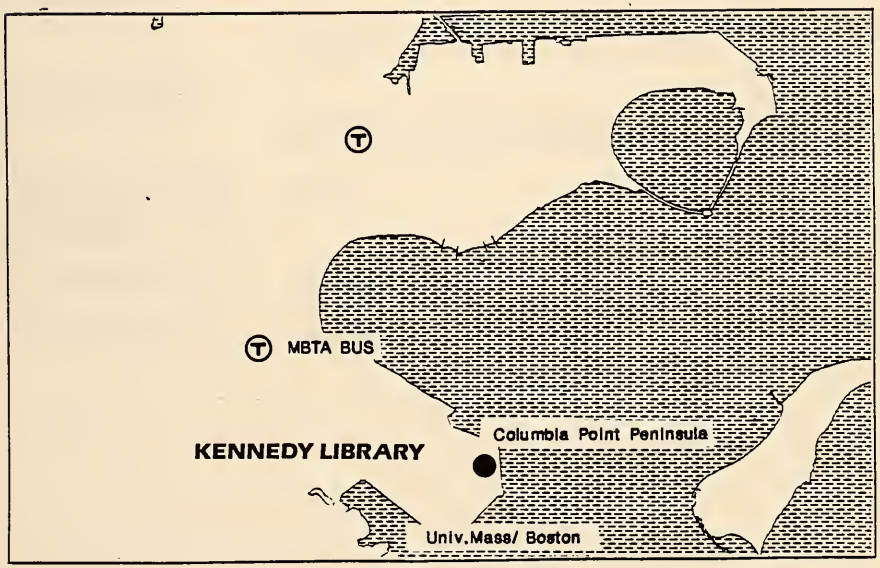


(Figure 5.14)

KELLY'S LANDING

SITE:	The Kelly's Landing site is located on the southern tip of Farragut Road, fronting on Dorchester Bay in South Boston.
OWNER:	Metropolitan District Commission (MDC)
DEVELOPER:	Metropolitan District Commission
STATUS:	Completed
DESCRIPTION:	The site is currently used as a public landing for small boats and pleasure craft. The site is adjacent to Castle Island.
LANDSIDE FACILITIES:	MDC park with a 12 mile, pedestrian/bike path, which is approximately a half mile from public loading.
PUBLIC TRANSIT CONNECTIONS:	The Andrew Square Red Line station is approximately one half mile from the site.
EXISTING WATER TRANSPORTATION SERVICES:	None
DOCK CAPACITY:	80 linear feet of dock space.
SITE SUITABILITY:	Possible location for excursion service.

UNIV.MASS/KENNEDY LIBRARY

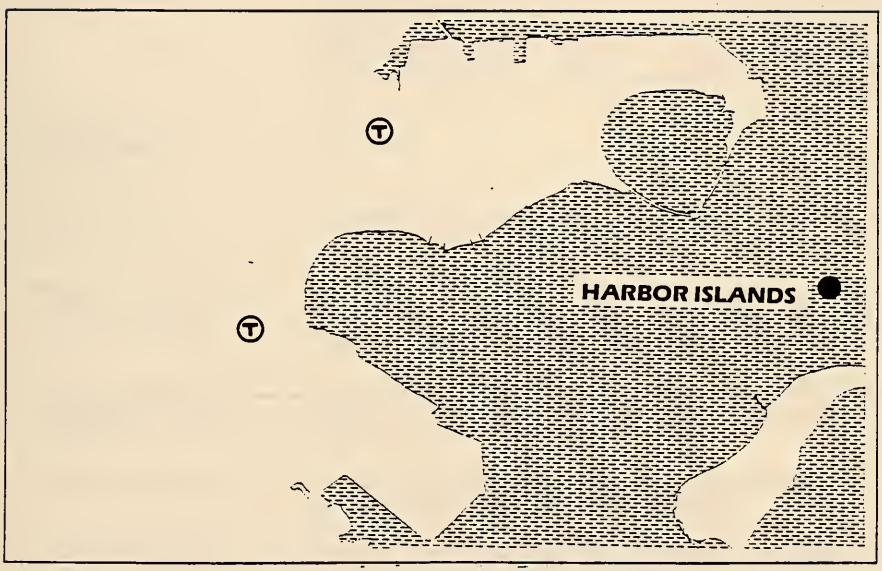


(Figure 5.15)

UNIVERSITY OF MASSACHUSETTS/KENNEDY LIBRARY

SITE:	The University of Massachusetts/Kennedy Library site is located on the northeast corner of the Columbia Point peninsula in Dorchester,bounded by UMASS/Boston and the Harbor Point residential development.
OWNER:	The University of Massachusetts
DEVELOPER:	The Kennedy Library and University of Massachusetts
STATUS:	The addition of the dock is in the preliminary design stage, with completion scheduled for 1989.
DESCRIPTION:	In a partnership with the National Archives, the Kennedy Museum will be constructing a water shuttle dock.
LANDSIDE FACILITIES:	The site has limited parking and access, 2,000 s.f. covered waiting area, and public boat moorings.
PUBLIC TRANSIT CONNECTION:	The site is served by a shuttle bus which provides connection to the JFK/UMass Red Line station.
EXISTING WATER TRANSPORTATION SERVICES:	None
DOCK CAPACITY:	The facility will have 180 linear feet of dock space.
SITE SUITABILITY:	Suitable for excursion service, shuttle, and water taxi.

HARBOR ISLANDS STATE PARK



(FIGURE 5.16)

HARBOR ISLANDS STATE PARK

SITE:	The State Park is composed of nine harbor islands - George's, Thompson's,Peddocks, Lovells, Great Brewster, Calf, Grape, Gallops, and Bumpkin.
OWNER:	Department of Environmental Management, Metropolitan District Commission, and City of Boston, Board of Trustees of Thompson Island Education Center.
DEVELOPER:	Department of Environmental Management (DEQE)
STATUS:	Water transportation facilities are currently under construction, to be completed for the 1992 summer season. (The islands are open during the reconstruction phase, Memorial Day to Columbus Day.)
DESCRIPTION:	An integral part of the plan to upgrade the Harbor Islands State Park is construction of new water transportation facilities: floats, docks, and other support facilities for water transportation to, from, and between the islands.
PROJECT INVESTMENT:	$35 million
LANDSIDE FACILITIES:	Covered visitor centers with exhibit space and ticket booths.
PUBLIC TRANSIT CONNECTIONS:	The Aquarium Blue Line subway station is located at Long Wharf, where shuttle service to the islands originates.
EXISTING WATER TRANSPORTATION SERVICES:	The islands are currently served by many private operators as well as a state-subsidized water taxi service bringing visitors out to the islands.
DOCK CAPACITY:	A total of 3,500 linear feet of dock space will be constructed on the eight different islands.
SITE SUITABILITY:	Suitable for excursion service. A water taxi operates from George's Island to the smaller islands.

Other Potential Sites

There are several other potential water transportation services and sites which are outside the categories previously discussed, including a potential water transportation system generated by the MWRA harbor clean-up effort, and a system associated with the Third Harbor Tunnel/Central Artery construction.

Massachusetts Water Resources Authority (MWRA): The MWRA is planning construction of waste treatment facilities at Deer Island and Nut Island in the Outer Harbor area during the next 10 years. In order to minimize impacts of personnel and goods movement on local communities and cross harbor traffic routes, MWRA has proposed and is implementing a plan for water-borne transport. The passenger ferry service for personnel has potential overlaps with a water transit network at several sites, as noted in the site descriptions. Sites currently proposed for MWRA personnel service include: Lynn at the Public Landing, Quincy at Marina Bay, Hingham at Hewitts Cove, Boston near North Station, and Boston at Rowes Wharf. New or expanded dock facilities are included at Lynn, Marina Bay and North Station. Hingham/Hewitts and Rowes Wharf are to be used without changes. depending on work shifts and ferry schedules, several sites may require additional dock space to accommodate all proposed new services. The MWRA is planning separate parking areas at those sites designated for park-and-ride, including Lynn, Marina Bay and Hewitts Cove.

Third Harbor Tunnel/Central Artery Construction Ferry Services: The size and scope of the construction effort may require an MWRA-type personnel ferry service, although it has not been proposed as yet. Also, facilities for roll-on-roll-off barging will also be needed. Such services could introduce new dock terminals and/or add riders to other passenger ferry services. While such a passenger ferry proposal may or may not be forthcoming, it is important to

consider scenarios which could expand and diversity public water transportation services in the Boston Harbor.

The emerging DPW and MWRA ferry plans should be coordinated with commuter and shuttle network plans to avoid conflicts and take advantage of joint use opportunities.

EXISTING SERVICES

EXISTING SERVICES

This chapter focuses on an analysis of commuter service, which operates between Downtown Boston and suburban localities, and shuttle service, which links locations within the Inner Harbor. The recreational services currently operating in the Harbor -- excursions, cruises, charters -- will need to be considered in the overall water transportation plan, but are not part of this analysis.

Commuter Services An Overview

Current commuter boat services have been in operation in Boston Harbor since 1979, and since that time have experienced rapid growth in both ridership and service level. The number of communities served and the frequency of service have increased, as have the speed and capacity of vessels. The result has been a rapid growth in ridership, particularly on the MBTA-subsidized Rowes Wharf to Hingham Route.

At present, four local boat operators are providing service between various South Shore communities and piers in the Inner Harbor.Two lines, Boston Harbor Commuter Service and Mass Bay Lines, Inc., provide service between the Hingham dock at the Hingham Shipyard and Rowes Wharf in Boston under contract to the MBTA. Another company, Bay State-Provincetown cruises, provides services to two locations in Hull, a non-subsidized service to Pemberton Point and a new service to Spinaker Island subsidized by the developer of that condominium project. The fourth operator, Harbor Trans., Ltd., connects the Marina Bay Development in Quincy to Rowes Wharf, and is operated by the developers of the Marina Bay complex from April to October.

The four operators make a total of approximately 25 round trips each weekday between the four South Shore locations and Downtown Boston (May-December schedule). In 1988, approximately 2,500 passengers were carried round-trip each day during the peak season.

Shuttle Services An Overview

Several Inner Harbor shuttle services are currently in operation. The best known and most frequently used of these is the Airport to Rowes Wharf shuttle, which is currently operated by Harbor Connection, Inc. under contract to the Beacon Companies. The service was contracted out to a private operator by Massport in its first two years. Two new shuttle services, each less than a year old, have been instituted in the Inner Harbor.Under contract to the Fidelity Funds, the major employer at the World Trade Center, Bay State Provincetown Cruises provides service between Long Wharf and the World Trade Center. Boston Harbor Cruises operates between Long Wharf and Pier 4 at the Charlestown Navy Yard. All of these shuttles charge the general public a fee.

Commuter Services System Profile

Hingham Dock to Rowes Wharf - Two private operators are engaged under contract to the MBTA to provide a dedicated service on this route which operates Monday through Friday with a total of 22 round trips per day.

One coordinated schedule is followed by both operations. Boston Harbor Commuter Service operates 15 of the round trips with five vessels; four are 150 passenger and one is 300 passenger. Mass Bay Lines has a single 150 passenger boat, operating 7 of the round trips. The trip takes between 30 and 33 minutes. Hingham to Boston service begins at 6:00 a.m. and concludes at 7:15 p.m., while

Boston to Hingham service begins at 6:45 a.m. and concludes with a final departure at 8:00 p.m. The surface parking lot at Hingham has 100+ free spaces. While the one-way fare is $3.00 for adults, a book of ten tickets reduces the fare to $2.75.

As the schedule has expanded and additional boats have been added, ridership has increased markedly. For example, the monthly rider total for May of 1984 was 11,601, while May of 1987 reported a total of 32,013. Similarly, January of 1986 reported 13,642, while by January of 1987 the monthly total had increased to 28,283. Presently, ridership has leveled off to approximately 1,900 daily passengers, increasing to 2,300 daily passengers during summer months, reflecting the addition of riders with South Shore summer homes. Approximately 70,000 persons make the trip each month in July and August.

Additional analysis of commuter service cost effectiveness issues is found in Chapter II.

Pemberton Point, Hull to Long Wharf Boston - This service is provided by Bay State-Provincetown cruises and involves no subsidy by a public agency. The once-daily commuter run departs Hull at 7:20 a.m. weekdays for a 50-minute crossing with a return leaving Long Wharf at 5:30 p.m. and arriving back in Hull at 6:20 p.m. A 400-passenger vessel is employed. The one-way fare is $2.50; a 40 ticket book results in a per trip cost of $1.75.Free parking is available in Hull. This year-round service has operated since 1980. Approximately 100 commuters take the boat on a regular basis, with additional traffic during the summer months, necessitating 3 daily round trips.

Spinaker Island, Hull to Long Wharf Boston - This service, also run without public subsidy, was initiated by the Spinaker Island Condominium Association. It operates with a small, 24-passenger, high--speed vessel which makes the crossing

in only 30 minutes each way. The daily service departs for Boston at 7:00 a.m. and returns for Spinaker Island at 5:00 p.m. The fare is a flat $5.00 each way.

Shuttle Services-System Profile

Airport Shuttle Service - Massport initiated a water shuttle service from Logan Airport to three downtown locations in July of 1985. The service was operated by Boston Harbor Commuter Service, the same operator who provides service to Hingham for the MBTA. The two-year experiment operated seasonally, from May 19 to December 1st. In its first year of operations the one-way fare for adults was $4.00, which was reduced to $3.00 in the second year of operation. Ridership totalled 350,000 passengers in 1986, an increase of 135% over the first year figures.

The service operated with one 20-passenger boat approximately half hourly, with a total of 35 runs every day. A large passenger bus carried passengers from the Bird Island Flats dock to the Airport terminals.

While the service showed promise, the service failed to attract enough riders to be deemed as cost effective by its sponsors, Massport. Fare box revenues accounted for only 11% of total operating costs. Massport's operating deficit for the project exceeded one million dollars. The service had several attendant problems:

- The design of the dock at the airport was poorly suited to the vessels used, resulting in long periods required for landing and passenger embarking.
- The half hourly service was judged by many as too infrequent to be competitive with other modes.
- Covered, heated waiting areas and gangways were absent at both ends.
- The shuttle bus connections at the airport end often failed to arrive on time to pick up passengers wishing to take the water shuttle. As a

result, water shuttle users travelling from the airport to Rowes Wharf accounted for only 20% of all passengers.

In June of 1987, the Massport service was transferred to the Beacon Companies (developer of Rowes Wharf) which agreed to provide the service for a five-year period. Massport agreed to provide a declining subsidy for operators, with $350,000 pledged for the first year.

Harbor Connection, Inc. under contract to the Beacon Companies increased the frequency of service to every 15 minutes by adding two new 28-passenger boats. In addition, three dedicated vans provide service between the Logan dock and the terminals. The hours of operation are 6:00 a.m. to 8:00 p.m. weekdays, and 12:00 noon to 8:00 p.m. Saturday and Sunday. The adult one-way fare has been increased to $6.00, with children under 12 riding for $3.00.

The new service has been promising, its rider-ship doubling from approximately 150 to over 300 in the first week. The crossing takes seven to eight minutes, with an additional average of 11 minutes travel time to the terminal, for a total average trip time of 20 minutes. While it is still too early to assess the success of the service, it is promising that 40% of passengers now embark at Logan instead of 20% as reported last year. 1987 ridership totaled 73,662. Ridership through October 15, 1988 totaled 154,612. The overall success and cost effectiveness of the service in the future will be determined by load factors, per-passenger trip costs, and the total cost covered by fare box receipts.

World Trade Center to Long Wharf - Bay State-Provincetown Cruises (BS-PC), under contract to the Fidelity Funds Corporation, operates a shuttle service between the World Trade Center (Commonwealth Pier) and Long Wharf. The service operation is primarily intended to transport Fidelity employees between Downtown Boston, site of most of Fidelity's offices, and the World Trade Center. The service was intended as a response to the traffic delays encountered by

Fidelity's vans which travel approximately the same distance, but via congested surface roads.

The service operates between 7:15 and 9:45 a.m. and 4 to 6:45 p.m. every half hour. The service is free to Fidelity employees, and the general public can travel for $1.00 each way. The trip takes approximately 8 minutes. Either a 24- or a 56-passenger vessel is used. In view of the success of the service Fidelity is contemplating increasing the service to every 15 minutes.

Charlestown Navy Yard - Pier 4 to Long Wharf - Since the spring of 1987, a cross harbor shuttle has operated between the Charlestown Navy Yard and Long Wharf. Before its expansion in October 1988, the service ran seven complete round trips each day, four during the peak morning and 3 in the afternoon-evening peak. No public subsidy was involved prior to the October 1988.

Since October 1988, Boston Harbor Cruises, under contract to the Massachusetts Bay Transportation Authority, with funding provided by the Massachusetts Department of Public Works in conjunction with the Executive Office of Transportation and Construction has operated the shuttle service between the Charlestown Navy Yard and Long Wharf. The service now operates 25 round trips each weekday, and 17 round trips on weekends and holidays. The first departure from Long Wharf on weekdays is 6:30 a.m., while the last trip of the day from Charlestown to Long Wharf departs at 6:45 p.m. On weekends and holidays, the first departure from Long Wharf is at 10:00 a.m., while the last trip of the day from Charlestown to Long Wharf departs at 4:15 p.m. Service is scheduled every 30 minutes, and crossing time is ten minutes, though landing delays often result from vessel congestion at Long Wharf and adverse currents and wind conditions at the Navy Yard.

Boston Harbor Cruises' two new 42 ft. vessels, Bunker Hill and Breed's Hill, capable of accommodating 38 passengers. Most (85%) of the users are residents of the Navy Yard who work in Downtown Boston. The fare is $1.00 each way -- a 60 ride commuter ticket can be purchased for $45.00.

A free van shuttle, operated by Andre Coach Lines, meets every water shuttle and provides service throughout the Charlestown Navy Yard.

CHAPTER 6

SITE AND SYSTEM CRITERIA

SITE AND SYSTEM CRITERIA

Specific site location criteria and system operation criteria have been developed for the four types of water transportation services evaluated in this report. Some of the criteria presented are the same for the different types of services. For example, commuter boats and express Inner Harbor shuttles need to operate very efficiently in transporting rush-hour commuters. Both services require destinations within close proximity to existing public transit connections and within walking distance to the downtown office/commercial core. Inner Harbor non-express shuttles and excursion boats similarly require docking sites within close proximity to hotels and facilities with cultural, educational and recreational attractions.

Site and system criteria are proposed below for four types of services: regional commuter, Inner Harbor shuttle (express and non-express), excursion, and water-taxi. The non-express Inner Harbor shuttle utilizes the same type of vessel as the express shuttle. Vessels used for operating the express commuter shuttle during peak hours could operate during non-peak hours and stop at more sites within the Inner Harbor for excursion and recreational purposes.

Site Criteria

Regional Commuter Site Criteria:

(1) Location within walking distance to the downtown office/commercial core in Boston.

(2) Proximity to MBTA rapid transit connections, in Boston.

(3) Parking and accessibility at out-of-city locations (in suburbs).

Inner Harbor Shuttle/Express Site Criteria:

(1) Proximity to existing public transit and commuter rail connections.

(2) Minimal boat travel time of two minutes to other sites having rapid transit connections.

(3) Location within walking distance to the downtown office/commercial destinations.

(4) Proximity to high-density residential areas.

(5) Proximity to tourist/cultural attractions, educational facilities, recreation areas such as:

- Northern Avenue Facilities (Children's Museum, Computer Museum, Boston Tea Party Ship)
- New England Aquarium
- U.S. Constitution/Navy Yard
- JFK Library/U.Mass.
- Boston Garden
- Quincy Market/Faneuil Hall area

Excursion Site Criteria:

(1) Proximity to hotel facilities.

(2) Proximity to tourist attractions and cultural facilities.

(3) Proximity to existing rapid transit and commuter rail connections.

(4) Availability of off-street parking.

Water-Taxis Site Criteria:

(1) Proximity to hotel and tourist facilities, cultural attractions.

System Criteria

Inner Harbor Express Shuttle and Regional Commuter System Criteria:

(1) Ability to move passengers from origin to destination in a time similar to or shorter than other modal alternatives (rapid transit, bus, taxi or private vehicle).

(2) Ability to move passengers from origin to destination at a cost competitive with other modal alternatives.

(3) Operation according to a fixed schedule with relatively short intervals between service.

(4) Ability to provide a high degree of efficiency during peak-hour demands.

(5) Proximity of origin points to other public transit transfer alternatives to reduce peak load concentrations (especially shuttle service).

(6) Proximity of origin points to Park-and-Ride/'kiss-and-ride' sites, and ability to store large numbers of vehicles that have adequate drop-off and waiting areas.*

(7) Ability to increase the number of vessels and the frequency of service as demand increases.

(8) Attractiveness as a transportation mode in all seasons and weather conditions.

(9) Ability to travel at relatively higher speeds in open waters.*

* Pertains only to Regional Commuter System.

Excursion Service System Criteria:

(1) Flexibility in vessel design and ability to accommodate various activities (sightseeing cruises, dinners, seminars, exercise groups, parties, weddings, fishing, etc.).

(2) Ability to on-load/off-load food, trash, music equipment, bicycles, and other goods.

(3) Attractiveness as a service in all seasons and weather conditions.

(4) Provision of on board restrooms and food service areas.

(5) Ability to operate during day and evening hours.

Water Taxi System Criteria:

(1) Radio capability allowing necessary communications with dispatchers.

(2) Ability to maneuver effectively in smaller basins and in congested areas as well as to travel efficiently between origin and destination.

(3) Easy recognition and distinction from other smaller boats, to alert passengers of the vessel's pending arrival.

(4) Ability to operate comfortably under adverse weather conditions.

(5) High visibility to ships, barges, tow boats and other working boats, particularly at times and days when smaller recreational boaters are not usually crossing shipping channels.

Potential for Water Transportation Services

Fifteen sites are evaluated against a number of criteria, including proximity to public transit, proximity to tourist, cultural and recreational activities; and proximity residential, commercial and hotel areas.

A matrix, Table 6-1 was used to compare each of the 15 sites against the site location criteria. All site criteria are considered equal.

Legend:

- Good ●
- Fair ◒
- Poor/Inadequate ▨
- Not applicable ○

The results of the matrix are summarized below. After comparing each of the 15 sites against the site location criteria, locations with the greatest potential for that service were determined.

Site Suitability

Inner Harbor Shuttle:

Rowes Wharf
Long Wharf
Lewis Wharf
Burrough's Wharf
North Station
Navy Yard/Pier 4
Navy Yard/Pier 11
Schrafft Center
Clippership Wharf
Logan Airport
Kennedy Library
Commonwealth Pier
S. Station/Fort Point Channel

Regional Commuter:

Rowes Wharf
Long Wharf
Commonwealth Pier

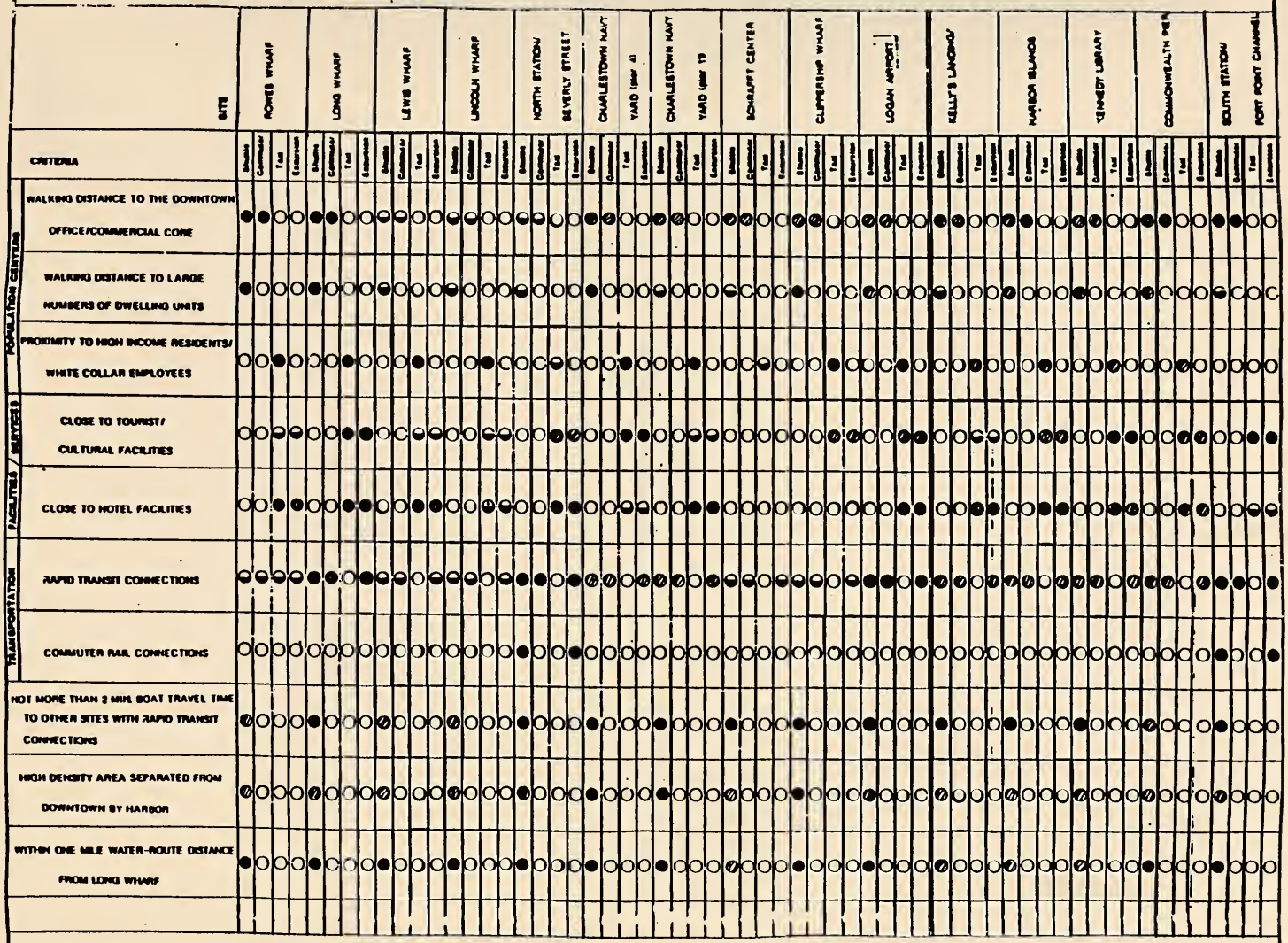
Excursion:

Long Wharf
Commonwealth Pier
Kelly's Landing
Harbor Islands
Commonwealth Pier
Kennedy Library

On-Demand Water Taxi:

Rowes Wharf
Long Wharf
Lewis Wharf
Burrough's Wharf
Navy Yard/Pier 4
Navy Yard/Pier 11
Schrafft Center
Clippership Wharf
Kennedy Library
Commonwealth Pier
Harbor Islands

MATRIX: POTENTIAL FOR WATER TRANSPORTATION SERVICES



CHAPTER 7

DESIGN GUIDELINES

DESIGN GUIDELINES

This chapter provides overall design guidelines for docking and landside facilities for the loading and off-loading of boats. Development of boat docking performance standards or a 'building code' for docks, ramps, gang-ways and vessels has been studied by the Childs Engineering Corporation under contract to the Boston Redevelopment Authority to provide guidance to developers and to assure adequate, safe and handicapped accessible facilities for vessels and passengers. Design goals include:

- o High performance capability
- o Functional ease
- o Long-term durability
- o Low maintenance and operations needs
- o Attractive and appropriate design
- o Barrier-free accessibility

Design Guidelines for Landside Facilities and Terminals

- o Boat Access to Docks

  Considerations for loading/off-loading of passengers, equipment, fuel, trash, and the ability of the docks to function through all astronomical tidal elevations need to be addressed.

- o Terminals

  Terminals for commuter services should be constructed to provide protection from year-round weather conditions, i.e., wind, cold, precipitation,and sun.

  Terminals should have lighted, temperature-controlled waiting and ticketing facilities which incorporate a more complex design program,including: transportation and general information kiosks, public toilets,water fountains, seating areas, queuing area, public telephones, boat operators base/office, storage areas for trash removal, concession services and other miscellaneous needs. This type of terminal should be considered for commuter and excursion boat service.

- o Shelter

  A covered waiting room (Figure 7-1) should be provided on the landside to provide protection from wind, sun, rain and snow.

The shelter should be lighted and have a temperature-controlled environment. Basic design elements to be included are cover, wind, rain and snow breaks, and trash receptacles. The covered waiting room with seating for 40 and standing room for in excess of 100 people will provide shelter while waiting for the arrival of the shuttle or water taxi. A ticket kiosk could be built into the waiting area. Since this type of service is intended for short runs, no sanitary facilities will be provided.

A prototype shelter is illustrated by Figure 7 . 1

- o Design Elements for Signage

  Directional signage should be provided to aid water/ground transfers.

  Route information regarding all water transportation systems should be provided at kiosks along Harborwalk, at MBTA rapid transit stations,and at water transportation terminals.

  Signs identifying exits must be placed at the point of exit and not more than 100 feet from the exits and from each other. If the facility is to be lighted, the exit signs must be lighted to a level of at least five (5) ft-candles. Internally lighted signs must have the same visibility as externally lighted signs. Emergency lighting is required for all lighted exit signs. It must be at the same level as the normal lighting and must be maintained for the same length of time as the emergency lighting for the rest of the area.

- o Design Elements for Public Spaces

  Lighting standards should dictate well-lighted areas on the landside without producing dangerous glare conditions on the water side.

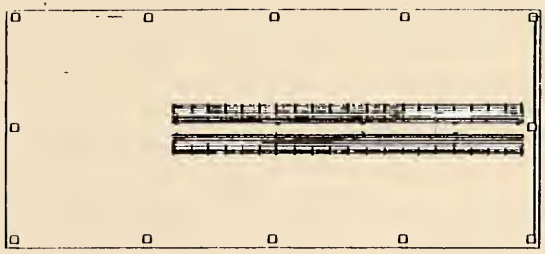
  Street furniture should conform to or exceed Harborwalk standards.

  Hardy, seaside plant varieties that can withstand salty spray and windy conditions should be used. Evergreen trees can be utilized in more protected areas to ensure greenery in winter months, provide definition of spaces, frame and reveal vistas, and to reduce glare, noise and air pollution.

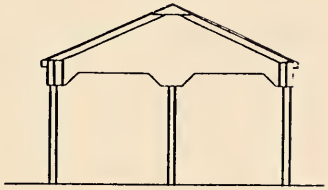
  Paving materials can include granite brick and wooden deck. Paving textures should provide assistance to individuals with impaired vision and other disabilities.

- o Design Guidelines for Harborwalk and Connections

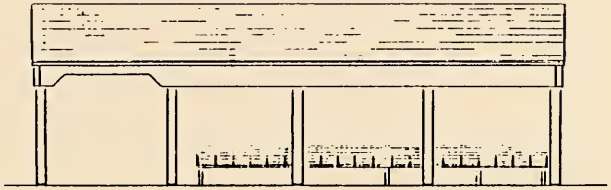
  The access roadway should be wide enough for passenger vehicles to pass each other. A turnaround at the discharge end of the roadway will allow automobiles to change direction and leave. The turnaround should be wide enough to allow vehicles to drop off passengers without stopping the flow of traffic. A curb will be provided along at least the water side of the roadway to separate the roadway from the "Harborwalk" sidewalk which is to be between the road and edge of pier. An access ramp will be built into the curb in the vicinity of the waiting area (Figure 7-2).



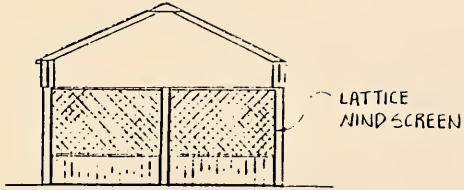
FLOOR PLAN



END ELEVATION
(AT LOADING/TURNAROUND)



WATERSIDE ELEVATION



END ELEVATION
(AT WATERSIDE)

STANDARD PARK BENCH DETAIL

NTS

COVERED WAITING AREA

BOSTON REDEVELOPMENT AUTHORITY

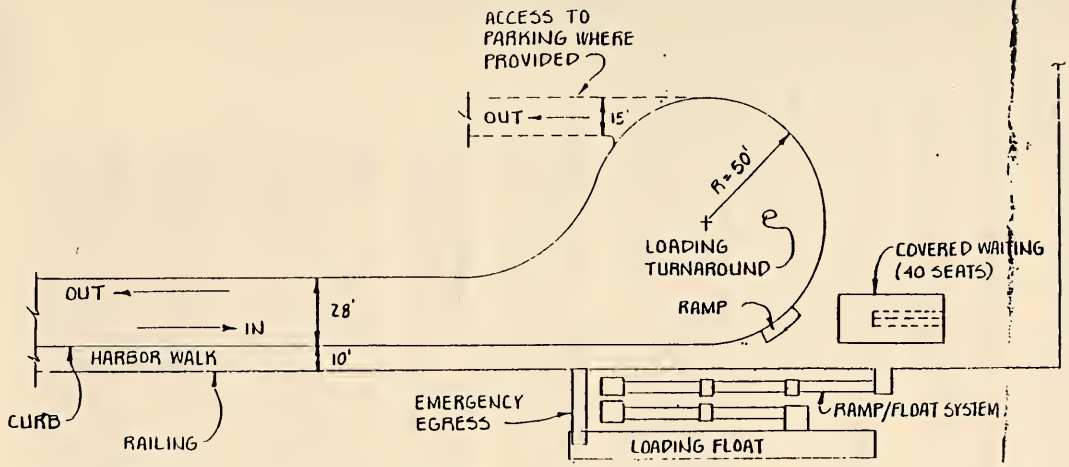
BOSTON, MA

FEBRUARY 1988

CHILDS ENGINEERING CORPORATION
BOX 333 MEDFIELD, MA 02052 U.S.A.
DR EWH
CK

SK-82287-3

(FIGURE 7.1)



PLAN

(FIGURE 7.2)

WATER SHUTTLE FACILITY

BOSTON REDEVELOPMENT AUTHORITY

BOSTON, MA

FEBRUARY 1988

CHILDS ENGINEERING CORPORATION
BOX 333 MEDFIELD, MA 02052 U.S.A.
DR KMC/RWH
CK
SK-82287-4

Clearly marked and direct pedestrian links should be provided between water transportation facilities and rapid transit stations serving the waterfront.

All public access should meet barrier-free design criteria.

o Design Guidelines for Marine Facilities and Marina-Related Considerations

Maintenance/repair/dry dock facilities need to be provided for all vessel types.

Service areas should be separated according to large and small boat needs.

Long-term boat and equipment storage should be provided within close proximity to marina facilities.

Overnight docking facilities should be provided within the Inner Harbor. This service might be incorporated into a maintenance/repair/dry dock area.

Design Guidelines for Vessels

The variety of commuter, shuttle, and excursion vessels currently operating in Boston Harbor allows easy examination of the basic characteristics needed for an efficient and feasible system. While the most difficult variable appears to be that of size (current operators being somewhat limited by outdated designs), the following is a list of the minimum standards that should be considered in the boat selection for the Inner Harbor ferry:

- Size: A length between 50 and 65 feet seems to be the most appropriate. To clear the Charlestown Bridge, a clearance height of no greater than 22' is required. Most boats either in operation or under construction for similar purposes fit these criteria easily.

- Passenger capacity: While capacity should be dependent upon the expected ridership, boats with 24-, 44-, 75-, and 150-passenger capacities have been built successfully within the above size guide-lines.

- Speed: The proposed revised Boston Harbor regulations sets an Inner Harbor speed limit of a maximum of 10 MPH and states that"no vessel shall create a wake or operate at a speed which endangers life, safety or property of any person in Boston Harbor." Special exceptions may be permitted by the Harbormaster for specially designed high speed vessels that would not pose a health or safety risk.

- Loading: Design should permit rapid on- and off-loading and handicapped accessibility.

- Flexibility: Candidate vessels should be adaptable to the wide range of dock sizes and layouts currently in use. Similarly, the vessels should be suited to a number of uses. Off-peak uses could benefit from passenger amenities not needed during peak hour use.

- Durability: As evidenced in the early days of the Hingham commuter service, hydrofoils are easily damaged by the debris floating and submerged in the Inner Harbor. Boats should also be designed with the often inclement weather in mind. Local operators boast that only hurricane-force weather has caused cancellation of service.

- Aesthetics and Amenities: Few passenger amenities are needed beyond what is provided on MBTA buses and trains. Some exposed deck area would probably enhance excursion use.

Design Guidelines for Barrier-Free Accessibility*

Providing for "full and equal" and independent access for the loading and off-loading of handicapped persons has been problematic, given the 9-12 foot tidal fluctuations in Boston Harbor. The Childs Engineering Corporation dock study recommends the use of a full access floating ramp (Figure 7-3) and a full access float/elevator (Figure 7-4) that are able to function within the tidal fluctuations in Boston Harbor, allowing barrier-free access.

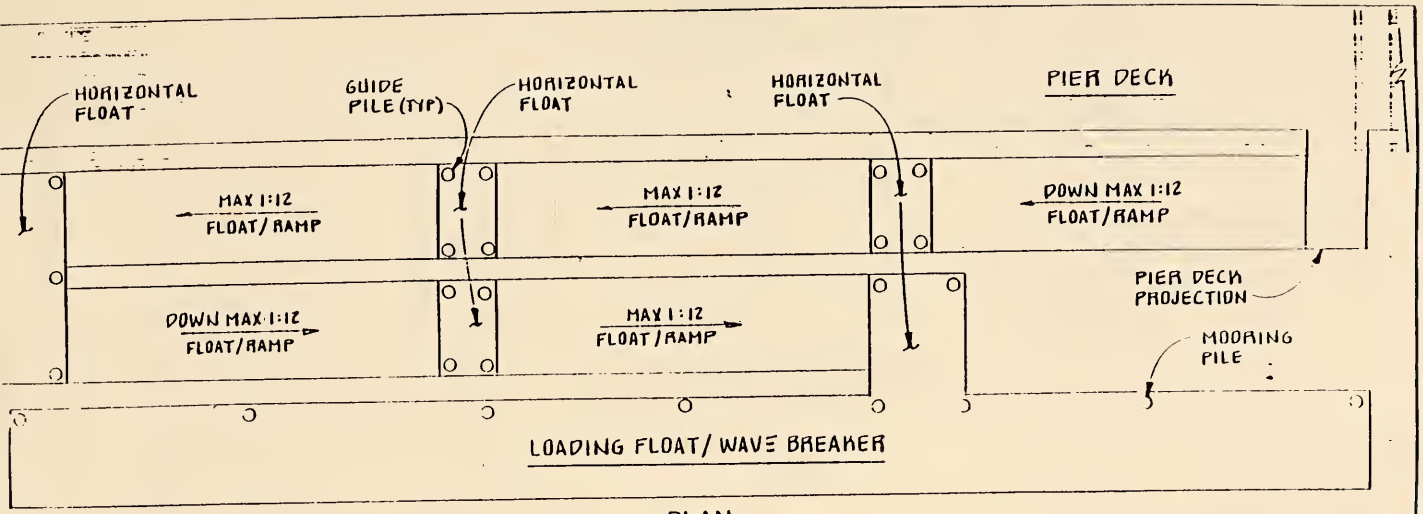
Existing laws provide a framework which outlines minimum standards for providing handicapped accessibility to programs, activities, services and facilities.

---

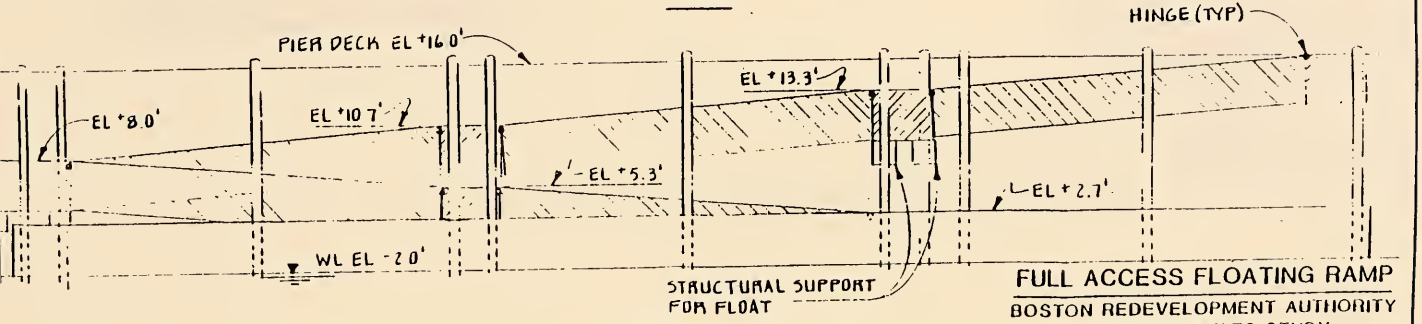
* Definitions:

"Handicapped Persons" means any person who has a physical or mental impairment which substantially limits one or more major life activities.

"Major Life Activities" means functions such as caring for one's self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working.



PLAN

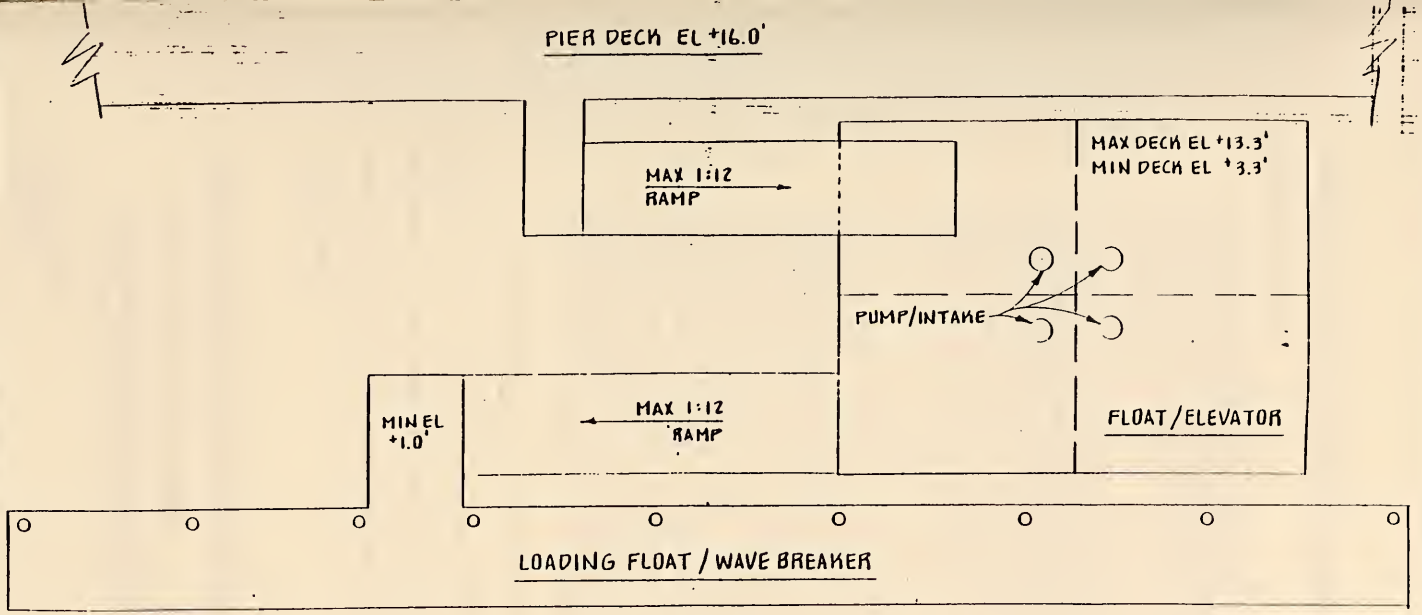


ELEVATION

FULL ACCESS FLOATING RAMP

BOSTON REDEVELOPMENT AUTHORITY
HARBOR FACILITIES STUDY
JANUARY 1988

CHILDS ENGINEERING CORPORATION
BOX 333 MEDFIELD, MA 02052 U.S.A.



PLAN

NOTE:
FLOAT / ELEVATOR MOVES 2'/MINUTE VERTICALLY.
MAXIMUM OPERATING TIME IS 5 MINUTES.

FULL ACCESS FLOAT / ELEVATOR

BOSTON REDEVELOPMENT AUTHORITY
HARBOR FACILITIES STUDY
JANUARY 1988

CHILDS ENGINEERING CORPORATION
BOX 333 MEDFIELD, MA 02052 U.S.A.
DR AHC CK
SK-82287-2

(FIGURE 7.4)

Three of the most important State laws protecting disabled persons from discrimination are:

- The State Constitutional Amendment of 1980 states that "no otherwise qualified handicapped individual solely by reason of his handicap shall be excluded from the participation in, denied the benefits of, or be subjected to discrimination under any program or activity in the Commonwealth;

- The Public Accommodation Law, enforced by the Massachusetts Commission Against Discrimination, provides that "all persons... (including disabled persons)...have the right to the full and equal accommodations, advantages, facilities and privileges of any place of public accommodation." A "place of public accommodation" is defined, in part,as being "a carrier, conveyance or elevator for the transportation of persons, whether operated on land, water or in the air, and the stations, terminals and facilities appurtenant thereto;" and

- The Rules and Regulations promulgated by the Architectural Barriers Board pursuant to its authority under Chapter 22, Section 13A, are designed to make public buildings accessible to, functional for, and safe for use by physically handicapped persons. According to the Purpose and Scope of the Board's rules and regulations, effective April 1, 1982,Section 2.2 states: "It is the intent of the rules to provide physically handicapped persons full and free use of all buildings and facilities so that all such persons may have the educational, employment, living and recreational opportunities necessary to be self-sufficient as possible and to assume full responsibilities as citizens." According to Section 3.1,the Board's jurisdiction applies to "All construction, reconstruction,alteration, remodeling and changes of use of public buildings or other facilities open to the public..." (See Appendix 5 for "Handicapped Access Code".)

In order to devise a long-term solution that meets the City and State requirements for handicapped access, Childs Engineering Corporation has been contracted by the Boston Redevelopment Authority to focus specifically on developing appropriate building standards to help developers comply with these requirements.

Design Guidelines and Considerations for Provision of Handicapped Access

- Docks, Ramps and Gangways

  Docks should be constructed with well-laid, even, non-slippery surfaces,with the edges of the docks having an 18" wide area of a different texture and

color to warn visually impaired persons of the edge. Seating areas must be provided every 250+ feet.

Ramps or gangways must be of a slope no greater than 1:12. Ramp length should not exceed 32 feet but may be shorter.

- Vessels

Many commuter boats provide limited accessibility to handicapped riders. Where boats are older and not accessible to riders, any services that are provided in inaccessible locations will also be provided to handicapped riders. When new equipment is ordered, accessibility must be considered in the design.

- Sensitivity Training

In order to ensure that personnel working on the vessels provide proper assistance to handicapped persons, particularly until an accessible docking system is developed, sensitivity training should be provided. The training should be developed in conjunction with the Mayor's Commission on Handicapped Affairs. While, this type of training is not mandatory, it is necessary to insure that as many members of the community as possible are encouraged to use a water transportation system.

CHAPTER 8

MANAGEMENT ISSUES

MANAGEMENT ISSUES

Scope of Management Issues and Services

The creation of an effective management system of landside facilities is critical to the success of the entire water transportation system. Management issues include the designation of responsibility for items such as: security, cleaning, providing utilities, landscaping, maintenance. Also included are the rules governing the servicing of vessels including: fueling, provisioning, trash removal, repairs and overnight berthing. Responsibilities for developing and maintaining new service facilities on the docks need also be considered, such as Rowes Wharf. Rules and procedures governing the location of boat operators on multi-tenanted piers, along with queuing procedures for various vessels and the efficient loading and unloading of passengers are also part of management.

A number of legal and regulatory issues are tied to these concerns. Legal responsibility in many of these areas is unclear. For example, responsibility for some aspects of pier operation and maintenance belong to the tenant (i.e., boat operator) while some belong to the pier owners. The issue is further complicated by the special marine nature of piers and docks and their consequent governance by a special body of law and practice.To add to the complexity of pier management issues, some wharves are owned by public agencies, such as Long Wharf, while others are in the private domain. Some are publicly owned but are leased to a private entity on a long-term basis, such as Rowes Wharf. Some portions of wharves are public and other portions are private. This complex owner-tenant-user ownership pattern imposes special problems in determining insurance liability.

Specific problems may also occur as a result of competing types of water transportation services or user groups. Excursion boats, pleasure craft and

commuter boats often compete for docking and water space in the same waterway. In future the problem will become more acute as various services expand. It might be advisable, for example, to separate excursion activity from commuter activity if it becomes clear that time sensitivity is more important to the success of the latter service than the former one.

Pier Space Management

An important issue in pier management is the allocation of space for critical functions needed for the efficient operation of a water transportation network. As is evident at Long Wharf, many more functions take place than can be easily accommodated on the limited surface area or "apron" of the pier. Functions that need to be accommodated include:

- ticketing and information;
- queuing areas for passengers;
- areas for passengers unloading;
- storage space for supplies, food, water;
- fueling;
- vessel servicing and limited repair.

While the planned expansion of Long Wharf will provide some additional space for these activities, there are ways to better accommodate these functions. First, a system of floating service barges or "plazas", similar to those used by Mass Bay lines, effectively doubles or triples the space for these activities by providing storage out of public view. In addition it enables a more efficient system of passenger loading and unloading by allowing up to three vessels to be loaded and unloaded simultaneously. Additional research is needed in this area, research which will be critical as services expanded.Organizing service activities with sensitivity to the time of day they occur can assist in effective space management. Deliveries of fuel and other provisions should be limited to off-hour periods such as early morning. Extensive repair work and the storage of vessels

not in active use should take place off-site. In addition, where space conflicts occur resolution should take place in the context of clearly established guidelines. Where possible the loading and unloading of vessels should take place simultaneously, with passengers exiting at a different level or end of the boat than those entering.

Licensing and Permitting

The issue of permitting and licensing of boat operators and/or routes raises questions as to who should be allowed to operate a water transportation service in Boston Harbor, for which routes, for how long, and under what conditions. A Coast Guard Safety Permit for the craft and a similar license for the captain and crew are currently the only requirements for operation in Boston Harbor, and the operator may choose any route and any schedule as long as permission has been granted to dock at the origin/destination points. Another question to be answered is whether water transportation services and routes should be more actively regulated by licensing or permitting agencies, or whether minimum safety permits should be required, allowing the market to determine the operators, routes, schedules and terminals. The City of New York, for example, requires operators to submit a detailed application for a permit to operate a water transportation service. The process can best be compared to a small-scale environmental impact report on the proposed service, addressing such questions as: proposed service routes, projected ridership for up to five years, schedule, rate, vessel, terminal, insurance, maintenance, personnel, and environmental impact. Detailed capital and operating financial statements, are required as well. (See Appendix 6: New York City's Ferry Permit Application Form.) Although these issues may not be resolved until one governing body has been established

for water transportation in the harbor, they must be addressed before water transportation in Boston Harbor becomes chaotic and unregulated.

Harbor Traffic

Increased water transportation use in the Boston Harbor will increase the potential for traffic and safety problems. The needs of water transportation services and commercial and recreational boaters may conflict with each other and the competition among them for space and services may increase congestion and the risk of accidents.

The current Harbor regulations are recognized to be outdated and inadequate in regulating usage of the Harbor, particularly with regard to the stated authority and responsibilities of the Boston Harbormaster. New regulations are being promulgated.

Jurisdictional issues (as outlined in the next chapter) compound this situation.

The following measures are recommended as a means of promoting the safe and coordinated use of the Inner Harbor for water transportation:

- Develop a Management Plan in conjunction with adjacent cities and towns bordering the Harbor which addresses harbor traffic safety problems related to competing uses in the Harbor. A management plan would include guidelines, standards, and where appropriate, designated areas for compatible water dependent activities, which could be incorporated into the City's licensing and permitting process;

- Develop inter-agency policies for managing water transportation activities in the Boston Harbor.

- Update and enact mooring and Harbor regulations for the City of Boston which address potential traffic and safety problems related to increased water transportation activities in the Boston Harbor. (underway)

CHAPTER 9

JURISDICTIONAL RESPONSIBILITIES

JURISDICTIONAL RESPONSIBILITIES

Existing Structure

No organized and duly constituted governing body currently exists to direct all water transportation activities in the Boston Harbor. In this regard, Boston is unlike other waterfront cities researched for this report (See Appendix 7). In Boston, multiple state and city agencies, along with many private boat operators, developers and commuters, compete to set policy and standards for water transportation. Jurisdictions overlap and efforts are duplicated, limiting the potential for a comprehensive, efficient system.Since 1983, regular meetings of the Water Transportation Task Force have been held to discuss developments in water transportation. This group includes representatives from the Executive Office of Transportation and Construction (EOTC), Massachusetts Bay Transportation Authority (MBTA), Massachusetts Department of Public Works (MDPW), Boston Redevelopment Authority (BRA), Department of Environmental Management (DEM), Department of Environmental Quality Engineering (DEQE), Coastal Zone Management (CZM), Massport, the City of Boston Transportation Department, National Park Service, South Shore Chamber of Commerce, as well as vessel operators and owners, consultants, and other interested parties.
Despite good representation and the numerous efforts by city and State to bring the various public agencies together to coordinate their activities, authority and jurisdiction regarding water transportation in Boston remain highly fragmented and confusing. One of the highest priorities for water transportation should be to establish of an effective governing body that could do the following:

- Address the problem of conflicting jurisdictions.
- Increase awareness of water transportation and promote it as a viable form of public transportation.

- Provide for representation from the many entities involved in water transportation.
- Finalize the technical aspects of the system such as design of vessels, facilities, routes, and scheduling.
- Provide for licensing and accountability of boat operators under safety regulations promoted by the Coast Guard and Boston Harbor Master.
- Establish policies and programs for the allocation of funds, subsidy of operators, and investment in facilities and equipment.
- Provide multiple water transit routes to ensure an efficient, comprehensive service.
- Oversee management operations of boat operators.

Options

Considering the above goals, four entities are proposed as possible governing bodies for Boston's water transportation system. The four options evolved out of a review of the current jurisdictions and interests in the Harbor, their operations and priorities, and through an analysis of what type of organization would be best able to fulfill the goals of a system recommended in this report.

Under all options, excursion and charter segments of water transportation would be left under the control of the private operators, with only advisory and regulatory guidance from the governing body. This would leave these more profitable "recreational" routes in the private market, allowing for greater competition, variety of service, and choice for the consumer.

Option #1: Massport

A separate division of Massport could be established to oversee the development and operation of a water transportation system, incorporating commuter and shuttle systems. One obvious reason for considering this system is that Massport is the established transportation authority for the Port of Boston, Mystic River Bridge and Logan International Airport. The Massport staff is

composed of planners, technicians and management personnel who administer a port complex composed of piers, terminals, and landside support facilities which are also essential components of the water transportation system. Massport has considerable experience in water transportation, having operated the airport water shuttle since 1985. Additionally Massport surplus revenues in the 1985 Fiscal Year were approximately $39 million. These funds could be channeled into a water transportation division for necessary start-up costs and future operational costs.

A potential complication is that the Massport Board is composed of members appointed by the Governor. It is not set up as a representative body, and therefore, City issues could be superseded by State or Massport priorities. Also Massport has the authority to condemn land, public or private for a public purpose. In this case, there is a potential that in developing a water transportation system, Massport could take either public or private piers to operate its system. The City of Boston, other cities and towns, and private owners or operators could potentially lose control over docks if Massport assumed authority for such services. If Massport decided to limit acquisition of new docking sites and utilize primarily those it currently owns, the inner harbor shuttle service might not provide the best routes for the general public.

Option #2: Regional Water Transportation Authority

A new Regional Water Transportation Authority, established by the State Legislature, could be created. It could be governed by a Board of Directors consisting of representatives of the City of Boston, affected cities and towns, appointed State representatives, private boat operators, and representatives from city and state agencies. This single purpose agency would have the sole mission of establishing and directing water transportation in the region.Jurisdictional,

fiscal, and administrative accountability would be focused in one entity, established with a clear mandate to oversee the operation of a comprehensive water transportation network. The situation would be similar to the conditions surrounding the Massachusetts Water Resources Authority (MWRA), which was set up in 1984 to address the water pollution problems of the Boston Harbor. As the MWRA consolidated jurisdictions and achieved consensus over pollution issues, so might a Regional Water Transportation Authority for water transportation.

As occurred with the MWRA, however, it might take years to form a new governmental authority through the State Legislature, to select representative members and to hire staff. Also, a long-term funding mechanism would have to be established to provide for the initial allocation for start-up and a subsidy base for system operations. By the time such an authority could become fully operational, the opportunity to completely realize Boston's potential in the area of water transportation might have passed, and the authority could defeat its own purpose.

Option #3: MBTA/Privatized

The authority and responsibility for a comprehensive, well-run water transportation system could be integrated into the existing structure and organization of the MBTA. This would seem a logical and effective choice for many reasons. The MBTA is the established public transit authority for the region and would bring stability and experience to water transportation as a component of public transit. The MBTA is fully versed in handling all segments of public transit, including scheduling, funding, technical planning, maintenance, legal issues, financing, advertising, and coordination with other modes of transit. The MBTA has capable operations, management, and planning staffs in place.

The MBTA has been the funding mechanism for the Hingham-Boston subsidy and the Navy Yard-Long Wharf water shuttle and has the ability to successfully generate and direct both capital and operating funds for water transit. The MBTA will be able to coordinate scheduling and advertising so as to maximize coordination with other forms of transit and to maximize promotion of water transportation as a reliable and effective form of public transit.

The MBTA could take on the central coordinating, funding, planning, and governing roles for water transportation, while leaving the actual operations to private boat operators. A representative water transportation task force could act as an advisory board to it. The commuter and shuttle schedules, routes, subsidies, fares, and policies could be directed by the MBTA, while operations would be "privatized" to operators, who would bid for routes and services (much like the Hingham-Boston shuttle runs today as a public/private partnership). This system would allow for stability in schedules, routes and funding, but leave plenty of room for private sector flexibility, competition and diversity.

Option #4: Regulated Private System

If the water transportation network were totally privatized, it would require the creation of a new regulatory framework to protect the public and minimize conflicts between individual operators. Standards for operations, facilities and equipment would have to be enacted by public authorities.When fares, facilities, and equipment are regulated by the city or state, the operators would have to pay strict attention to a fast and efficient service to maximize revenues. Also, a competitive system breaks down the high costs of start-up and operations between several operators. Initial capital costs are bourne by the private sector and there is no financial risk to the public.A comprehensive water transportation network is

more difficult to create with separate independent operators who have entered the market with individual goals in mind. There is the danger that without public control and subsidies, less profitable routes that are essential to the formation of a comprehensive system might not be served. Examples of this include two of the most popular and important routes currently operating in Boston Harbor.The Hingham commuter run and Logan Airport shuttle, which depend on subsidies from the MBTA and Massport respectively. In a private market system, these routes would be unable to operate without increasing fares, which would affect ridership levels. To insure that a comprehensive system is put in place, public subsidies are a virtual necessity, as is true of the current services. Overlapping jurisdictions make it difficult to reach a consensus on where the subsidy is needed and what the priorities are. Without some centralized authority, an effective decision-making process is more difficult and timeconsuming.

Recommended Option

Four governing structure options have been suggested. Three of the options, the Massport, publicly regulated private sector and MBTA/privatized possibility, partially reflect the situation that exists today, in which the private and public sectors each play a role in what can be called a loosely organized transportation network. The fourth option, a water transportation authority, would be the most significant change from the current situation. The four options were analyzed using the following criteria:

- representation:who would have input into the governing policy
- feasibility: how would the system pay for start-up and operation
- time-frame: how long would it take to set up the system
- function: how would the system include a range of low-demand and high-demand routes to provide a comprehensive water transportation service.

In much of the discussion on a water transportation system at the state and city levels, the priorities have focused on creating a coordinated and comprehensive system. City and state agencies have recommended the establishment of new routes and alternative types of service to help reduce highway congestion. This heightened concern for the formation of a comprehensive transportation system could be best accomplished by an MBTA/ privatized arrangement that would reach a consensus on system goals and objectives. From that consensus the MBTA could easily implement policy. The MBTA could also provide for long-range funding for equipment and facilities in a multi-leveled system that would be able to accommodate a wide range of routes and satisfy consumer demand.

CHAPTER 10

FUNDING WATER TRANSPORTATION/ COST EFFECTIVENESS AND COST FACTORS

FUNDING WATER TRANSPORTATION: COST EFFECTIVENESS AND COST FACTORS

In analyzing funding and cost factors related to water transportation, it is important to segment the different types of service for analysis purposes. Commuter service to South Shore communities, operated as a dedicated service under MBTA subsidy, can be appropriately compared to suburban commuter bus operation for analysis purposes. The airport shuttle recently assumed by the Beacon Company should not be compared to public transit modes such as the MBTA Blue Line, but rather to services such as taxi, with which it competes. Similarly, Inner Harbor shuttles or water taxis each require special analysis in determining cost effectiveness and appropriate sources of funding or subsidy.

This chapter will analyze each of the existing services in an effort to determine appropriate measures of cost effectiveness. Following this analysis recommendations are made concerning the most appropriate use for such subsidies.

Financial Analysis: Hingham Ferry Service

In considering the cost effectiveness of a water transportation service several factors require evaluation. First, commuter service from the South Shore should be considered separately from other types of service (i.e., airport shuttle, inner harbor, water taxis). Commuter service should be compared to other types of subsidized public transit operated between Boston and the same suburban location. Factors to be considered include:

- Travel time via competing modes;
- Cost and availability of parking;
- Ridership and load factor;
- Cost per passenger trip - both public and private;
- Percent the deficit represents of the total operating cost;
- Non-quantifiable factors

The Hingham service lends itself well to such an analysis. Two boat lines provide Rowes Wharf to Hingham service under subsidy contract to the MBTA. The two carriers receive a sliding scale subsidy which provide a clear financial incentive to each to maintain high load factors.

For commuters who live close to a bus stop, or Park-and-Ride, and who work near a Boston drop-off, but far from Rowes Wharf, the extra travel time by land may be more than compensated for by reduced travel time at either end of the trip. Survey results of boat users support this hypotheses. The vast majority of Hingham boat users work within four blocks of Rowes Wharf. Clearly persons who work in either Park Square or Copley Square would be more likely to select the commuter bus.

Ridership on the commuter boats averages 1,900 per day throughout the year with numbers in the peak summer months of July and August reaching 2,500, and the winter months averaging 2,000. The load factor of the boats averages 54% throughout the day. As might be expected, during the morning and evening peak times load factor climbs to 80%-90%.

A serious limitation is the availability of parking in Hingham. The surface lot frequently fills early in the morning, discouraging would be boat riders.

The Hingham commuter services is cost effective from several perspectives. First, in comparing travel time via competing modes, the service compares very favorably to the commuter bus service from the same general location. Three commuter bus lines provide State-subsidized service to Hingham and nearby communities: Carey Bus, Plymouth and Brockton, and Interstate. The trip by boat is 35 minutes, compared to a bus trip of 45 minutes, during light traffic and one hour during heavy traffic.

The commuter boat can offer reduced travel time because it is clearly a shorter distance by water - 10 miles rather than the 28 miles by land. Water transportation operates most effectively when the point-to-point distance is significantly less by water than by land. The commuter boat can further provide a higher degree of on-time reliability because like commuter rail, it operates in its own right-of-way and is therefore unaffected by the effects of traffic congestion.

Despite this travel time difference there are many communities for whom the commuter bus is a more appropriate mode choice. The buses have the ability to pick-up passengers at a variety of locations and distribute them to a number of points in the downtown area, whereas the boat is limited to two points, Hingham and Rowes Wharf.

Most commuters on the Hingham-Rowes Ferry purchase ticket books which set the per-trip cost at $2.75. Parking in Hingham is free, but frequently the lot fills, resulting in discouraged commuters. The travel time for the trip averages 35 minutes, making it extremely attractive when compared to other modes. Commuter bus operating from the same service area make the trip in from 45 minutes to an hour, depending upon traffic.

The MBTA contract with the two Hingham boat operators for fiscal 1988 (July 1, 1987 - June 30, 1988) was $1.28 million, roughly half of the operating costs. The MBTA also provides an operating subsidy to the three commuter bus lines which serve Hingham and environs. Carey Bus, Plymouth and Brockton transit, and Interstate fares are compatible to the commuter boat, ranging from $2.75 to $3.00. The fare box provided approximately 50% of operating revenues. In contrast to the boat, commuter buses experience little seasonal variation. It

should be noted that the Fare Box receipts account for 30% of the general budgetary operation of the MBTA Rapid Transit.

Clearly, commuter boat services play an important role in the transportation mix, one which is currently cost effective and which has the potential to be more so in the future when larger vessels are employed. The services also plays an important, though possibly immeasurable, role in reducing traffic congestion. It can be assumed that if the service did not exist some percentage of users would travel into the city by private automobile. What percent would elect to do so versus selecting a mass transit alternative (e.g., the Red Line) is difficult to estimate.

By contrast the buses service several large Park-and-Ride lots. While parking is free for both bus and boat modes, the limited boat parking severely limits the ability of this mode to expand and improve its cost-effectiveness. It is suggested that the MBTA consider planning a structured parking facility for the Hingham boat as is done at many rapid transit stations on the Red Line. The pricing structure could be comparable.

The per-trip costs and subsidies required by the MBTA for both commuter boat and commuter bus are very similar.

Logan Shuttle Market Research Findings

During the first two years of operation, Massport conducted two water shuttle user surveys; one was undertaken in-house while the other was prepared by an outside consultant. The results of these surveys are of extreme importance in designing any future Inner Harbor Water Transportation service. When designing a service, it is important to know the user characteristics:

- The origin and destinations of the trip;
- The trip purpose;
- Time of the season;
- Reason for the mode choice;
- Sensitivity of cost in more selection;
- Relative importance of travel time via the mode;
- Relative importance of "amenity" factor, i.e., water transportation is more pleasurable than competitive modes.

In gathering this data, a profile of the service emerges as somewhat comparable to the other existing water transportation service, the Hingham route. This assists in forecasting likely user characteristics of various proposed Inner Harbor runs. Overall, the factor that accounts for the relative success of both of these services is the fact that a significant and stable number of people wish to travel to a single destination, in one case the Airport, in another the Financial District. Further, travel to these destinations is often difficult and time consuming via conventional surface modes. For a defined percentage of persons traveling to these major destinations, in this case the Airport, water transportation possesses clear advantages. This group, the market for water transportation, is only a small subset of a much larger group of travelers. The future success of these services will depend primarily on the ability of the services to expand their penetration of this defined group by tailoring services to better meet the stated needs of the user group, rather than attempting to "widen the net" and thereby loose focus.

The first question which the surveys address is, who primarily uses the service? The answer is business travelers (65% in fall, 56% in summer) who are traveling between Logan Airport and the Financial District, particularly that portion of the Financial District nearest to the waters edge, within walking distance to the pier. This is supported by the fact that 56% of summer users and 60% of fall users reported that they walked to Rowes Wharf to take the shuttle. Further, those traveling from the Airport are primarily heading for Downtown

Boston (61% in summer, 67% in fall). In analyzing the user characteristics of the Hingham service one finds similarly that the vast majority of users are bound for a Financial District employer within walking distance of Rowes Wharf.

This supports the view that the market for future water transportation service should focus on users very close to the water's edge, since they are reluctant to make many mode changes. For example, airport-bound persons already on the MBTA Rapid Transit are unlikely to exit at Aquarium to transfer to the water shuttle. It is a more rational decision to remain on the Blue Line for the trip to the airport.

The majority of survey respondents were business travelers (56% in summer, 66% in fall). While no hard data yet exists on usage of the current service, its more frequent schedule (every 15 minutes versus every half hour) and more frequent ground connecting service (three vans versus one bus) add to its appeal to business travelers. Surveys indicate that business travelers select the boat for two reasons: its relative speed during rush hour periods when the tunnel is congested, and the "amenity factor" - a more pleasant mode of travel. Peak usage is during the morning and evening rush hours, when most business travelers are either arriving or departing Logan.

Survey results have found that the water shuttle traveler is usually not sensitive to cost. Persons who are cost sensitive usually take the T, a mode which has a generally different clientele.

Survey results found that more than one quarter of all users earned over $70,000 per year. The new service operated by the Beacon Company has found that doubling the fare to $6 each way from $3, while doubling the service level, has yielded a doubling in ridership, further demonstrating that cost is not a serious issue. Also, when asked what mode of travel the shuttle user could take

if the shuttle were not available, many more said taxi rather than MBTA (49% preferred taxi versus 27% MBTA in summer, and 56% preferred taxi versus 30% MBTA in winter).

In the first two years of operation some 80% of trips were bound for Logan while only 20% were returning. The infrequency of the single water shuttle bus, lack of a covered waiting area Logan dock at and the lack of frequent schedule contributed to this imbalance. The current 60-40 ratio, 60% bound for Logan, 40% returning reflects the new higher frequency of service, particularly the higher frequency (three times more frequent) of ground side transportation to the terminals.

Implications of the Airport Service for Other Inner Harbor Services

The first two years of the Airport service demonstrate that it is clearly not cost-effective for a service to attempt to be all things to all potential users. First the potential user group needs to be defined, and then a service should be planned which relates to the travel behavior patters of that user group.

The Airport Shuttle recognized that to be successful a service needed a level of frequency and amenity which would make it competitive with other travel modes, in this case primarily taxis at rush hour. Half hourly service connected to a single large bus at Logan was not competitive, while service at 15 minute intervals connected to a fleet of three vans was. Small, 24-passenger boats were also preferable to larger boats for this less-than-two-mile trip. Larger boats have difficulty loading and unloading passengers, resulting in delays. By contrast, the Hingham service has found that a large boat (300 passenger) is cost effective at peak periods, during rush hour.Ground side transit connections are not particularly

important for the airport shuttle rider bound for the Central Business District since users typically walk to their Financial District destination.

The availability of dockside parking is of critical importance to users of the Hingham service. A major constraint of that service is the lack of available dockside parking, dictating the need for a structured parking garage. Parking garages are quite costly, suggesting the possibility of a joint development to help off-set costs. By contrast users of the airport shuttle are primarily walk-in (56% summer, 60% winter). Park and ride commuter service has been suggested for the Inner Harbor, however, the case of the Marina Bay service suggests that motorists are unlikely to abandon their cars for a boat once they are within a few miles of the city. Were they to do so, they would most likely transfer to a rapid transit line with its superior distribution capabilities.

"Cross-Subsidy Financing" of Private Services

As mentioned earlier, both Bay State-Provincetown cruises (BSPC) operate water transportation services which receive no direct public subsidy. BSPC runs two commuter services from Hull: one from Pemberton Point and one from Spinaker Island. The former receives no subsidy of any kind while the latter is supported by the condominium association. In addition, BSPC operates the shuttle service between Long Wharf and Commonwealth Pier, a service subsidized largely by Fidelity. The operator of the new Navy Yard shuttle, has recently been subsidized by the Massachusetts Department of Public Works (DPW) and the Executive Office of Transportation and Construction (EOTC).

The method which each of these private operators use to support routes which by themselves are not profitable is "cross-subsidization". The key to success in water transportation, like other transportation modes, is maximizing the

hours of operation. In effect, charter and excursion trips are used to subsidize the morning and evening commuter runs. Typically, the same vessel may begin the day doing commuter service, then switch to excursion work during the mid-morning to late afternoon, then operate again as a commuter vessel during the evening rush hour. Following this, the vessel might then switch to charter work or concert cruise work in the evening.

That ability to effectively respond to different market segments is the key to financial success for these private operators. Operators who are under contract to provide the Hingham service must "dedicate" their vessel to the route, precluding excursion and charter work which would directly compete with private non-subsidized operators such as BSPC.

New models of public-private partnership should be explored as vehicles for expanding needed water transportation services. The subsidies provided by developers and major employees to shuttle and commuter services serves as models for new and expanded services. Examples of developer-sponsored service include:

- o Spinaker Island commuter service
- o Marina Bay commuter service
- o Rowes Wharf to Logan shuttle (joint Massport/Beacon Company)

Fidelity's subsidy of World Trade Center to Long Wharf service exemplified the sponsorship by a major employer.

In future years, waterfront development areas will be rapidly built-out and occupied by new workers and residents, all of whom will constitute a potential future market for water transportation, particularly shuttle service. Key development areas which constitute such a potential market are the Charlestown Navy Yard, and the South Boston and East Boston waterfronts.

Unlike ground side transportation, the right-of-way in water transportation already exists, consequently the amount of lead time required to develop new

service is relatively small. Once docks and other land side facilities are in place, services can be tailored to respond to demand as it develops in future. Much of the development which will be needed to support new or expanded water transportation service will not be in place until the mid-1990s. Consequently, it may be premature to undertake overly detailed service planning until the precise nature of those new uses is determined.

Planners and policy makers should explore new models for the financing of such service. The beginners of such models can be seen in the new services being sponsored by developers and major employers, including the Beacon Company's sponsorship of the airport shuttle and Fidelity's sponsorship of the World Trade Center shuttle.

New services could look to a mix of funding sources. For example, major employers at the Charlestown Navy Yard -- Mass. General Hospital, Mass. Water Resources Authority, and the BRA -- might offer user subsidies to employees. These could be supplemented with mitigation monies from the Central Artery project. The major developers, for their part, could be called upon to design and construct the landside facilities including docks, floats, covered waiting areas, consistent with their Chapter 91 requirements.

By creatively structuring the financing of water transportation in this way, the private boat operators might still be able to cost effectively cross-subsidize these services as they are now doing, employing the same vessel for a diversity of missions during the day.

This approach avoids the creation of a very costly special purpose authority to operate water transportation, one which would unfairly compete with private unsubsidized operators. Since most users of water transportation are middle to

upper-middle in income, the public purpose may not be well-served in further subsidizing this group.

CHAPTER 11

RECOMMENDED NEXT STEPS

RECOMMENDED NEXT STEPS

The following is a list of recommended next steps to be taken in order to develop a viable water transportation system in Boston Harbor:

- Establish an acceptable management entity with recognized jurisdiction over all aspects of Boston Harbor's water transportation systems.
- Develop a comprehensive water transportation management plan for the Boston Inner Harbor. Such a plan should include potential sites, services, routes, intermodal links and implementation schedule for developing water transportation in the Boston Harbor.
- Update and enact mooring and Harbor regulations for the City of Boston to address potential traffic and safety problems related to increased water transportation activities in the Boston Harbor.
- Implement design standards and specifications for landside facilities serving water transportation, i.e., BRA review of waterfront/water transportation projects.
- Establish a licensing and permitting system for water transportation services, which incorporates standards for landside and docking facility construction, operations, and boating safety.
- Undertake the following studies:
  - A study to determine the appropriate vessels for the Inner Harborwater transportation system;
  - An analysis of ridership to identify service demand and routes for the Inner Harbor water shuttle system;
  - A cost feasibility analysis for evaluating various types of water transportation services in the Inner Harbor.
  - A study to formulate guidelines for leasing management of water transportation operations.
- Coordinate efforts with the Massachusetts Water Resources Authority (MWRA) and Department of Public Works (DPW) in developing new sites for water transportation terminals.
- Identify sites that may serve as potential water transportation terminals to mitigate the adverse effects of Central Artery construction.